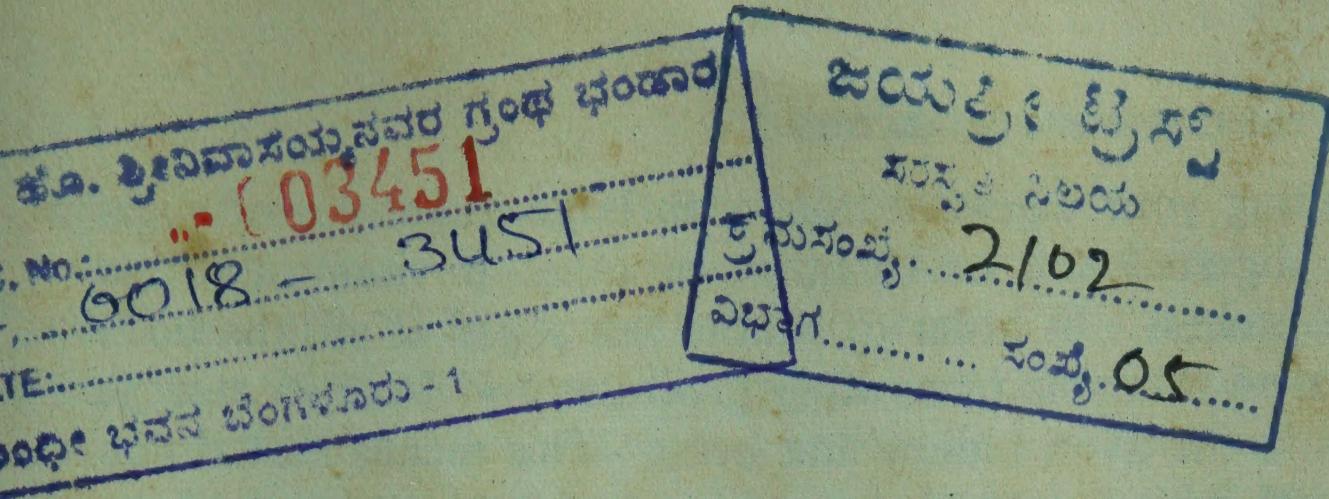


SUGAR

THE CURSE OF CIVILIZATION

J.J. Rodale

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Beware The Robber—Sugar

The practice of eating sugar deprives the body of essential vitamins

ELSEWHERE in this booklet is set forth much valuable information regarding the disadvantages of taking artificial white sugar into our bodies, but in this portion of it I would like to state that the practice of eating sugar results in robbing the body of its vitamin B. It is that portion of vitamin B called thiamine which is destroyed. Thiamine is one of the most important vitamins for good health. It is necessary for growth, good appetite, smooth functioning of the digestive tract. It plays so big a part in nerve health that it is called the "morale" vitamin. Most important of all, thiamine is vitally concerned with the digestion and assimilation of all carbohydrate foods—the sugars and starches. It must be present in considerable quantity if these foods are to be used at all by the body.

Thiamine is stolen from our bodies by these robber foods—white sugar, synthetic sugar, white flour prepared cereals and many other refined and processed foods. If you eat carbohydrates in natural forms you do not experience any thiamine deficiency because the thiamine to digest the sugar or starch is present in the natural food. For instance, blackstrap molasses contains a great deal of natural sugar. It also has thiamine and a number of the other B vitamins, ready to go to work. Refined white sugar is the product that remains after all these B vitamins as well as many other valuable minerals have been removed from the molasses. When you eat white sugar in coffee, cakes, sweets, pies, ice cream and soft drinks you are

presenting your digestive tract with large quantities of sugar to be digested and no thiamine or other B vitamins to aid in the process. In order to handle this sugar at all, the body must steal thiamine from other processes and from its storage places in the liver, kidney and heart. This means that if you eat much white sugar, if you eat some of it every day, you are almost bound to suffer from thiamine deficiency. If you are a heart case such a dietary habit is cold suicide as you shall soon see. We might express it thus: Sugar = vitamin B deficiency = heart trouble.

Vitamin B and the Heart

Now let us proceed into a discussion of the medical writings which show the relationship between heart trouble and vitamin B deficiency. In a book called *The Avitaminoses*, by Walter H. Eddy, Ph.D., and Gilbert Doldorf, M.D. (published by The Williams & Wilkins Company), appears the statement, "Thiamine deficiency impairs the function of the heart, increases the tendency to extravascular fluid collections and results in terminal cardiac standstill." The authors show how the famous English research physician, Sir Robert McCarrison, in experiments with pigeons produced cardiac (heart) changes in them by feeding them a vitamin B deficient diet. Eddy and Doldorf describe another experiment in which congestive heart failure was produced in pigeons and then cured by thiamine.

In the book *Nutrition and Diet in Health and Disease* by James S. McLester, M.D. (W. B. Saunders Company), it is stated that a thiamine deficiency causes a degeneration in the heart muscles. Pigs that were fed a thiamine free diet showed a scarring in the right side of the heart.

E. V. McCollum, Ph.D., ScD., LLD., in *The Newer Knowledge of Nutrition* (The Macmillan Company), shows that the normal heart rate of the rat is 500 to 550 beats per minute but when they are fed a diet low in thiamine for about three weeks the rate goes down to about 350 per minute. In fact this reduction is so dependable an occurrence on lowering the thiamine intake that it is used in laboratories to test the thiamine content of certain vitamin products. It was shown that where the heart rate of deficient animals went down, it could be brought up again automatically within four

hours after the administration of thiamine.

In the book *Vitaminology* by Walter H. Eddy, M.D. (Williams and Wilkins), the fact is discussed that a thiamine deficiency leads to beriberi disease. He says, "A definite relation of thiamine deficiency to cardiac (heart) function has long been recognized. . . . The characteristics of beriberi heart in human subjects are enlargement (usually of the right side), decreased circulation time, elevated or normal venous pressure, less difference than normal between the oxygen content of arterial and venous blood, and usually rapid recovery following thiamine therapy. Similar effects are observed in patients developing thiamine deficiency through the excessive use of alcohol. In both these cases the heart is tremendously dilated and the edema (swelling) is massive." This book is just chock full of instances of heart damage where the thiamine in the diet is lowered, but there is one statement which is extremely significant: "The effect of thiamine was interpreted as increasing arterial tone." Having studied the importance of healthy artery walls in order to prevent hemorrhaging and the production of blood clots we can see how grave a condition it is for a heart case to ignore the question of the thiamine content of his diet.

unfamiliar forms of heart failure are described due to faulty nutrition mostly due to a lack of thiamine.

In the *New Zealand Medical Journal* for June, 1952, there is an article by G. L. Brinkman, M.D., in which four

Other Parts of Vitamin B

There are other parts of the vitamin B complex which should also be considered in the treatment of this subject. For example—biotin. A deficiency of biotin produces symptoms of lassitude, sleepiness, muscular pains, loss of appetite, pallor, dryness of skin, disturbances of the nervous system and a feeling of distress in the region of the heart.

Inositol, another fraction of the vitamin B complex, seems to be a factor in discouraging the formation of cholesterol, and you know how important this is in preventing hardening of the arteries, which is a highly undesirable complication in any heart case. Choline, still another one of the B vitamin complexes, has been shown to be a preventive of high blood pressure. In the *American Journal of Physiology* for December,

1952, there is an article which reports how high blood pressure was produced in rats by only one week of a low choline diet, and as soon as the choline was restored the blood pressure fell. In the *Proceedings of the Society of Experimental Biology and Medicine*, Volume 73, 1950, Dr. Lester M. Morrison and Dr. William G. Gonzales reported choline treatment for patients with hardening of the arteries. Of 230 patients, half were given conventional medication and no choline. The other 115 received choline daily for from one to three years. Of those not treated with choline, the death-toll in three years was about 30 per cent, while only 12 per cent of the choline-treated patients died.

Another fraction of the vitamin B complex is pyridoxine and in experiments with mice a deficiency of it severely damaged their heart muscles.

Vitamin B and Stress

In our discussion of vitamin C we have seen how it is a factor in fortifying the body against conditions of stress. There seems to be evidence also that vitamin B serves the same purpose. The B fractions which are so involved include pantothenic acid, riboflavin, folic acid and vitamin B12 as well as our old friend thiamine, and the particular site of trouble caused by their deficiencies and which reduce ability to withstand stress is in the adrenal glands.

In one case an investigator by the name of Rolli found that rats who were on a diet deficient in pantothenic acid showed an inability of the white blood cells to withstand stress. There is a considerable amount of animal experimental data which proves conclusively that both vitamin B and C are factors enabling the body to withstand tension-caused illnesses.

Dr. Jolliffe

Dr. Norman Jolliffe, an outstanding authority in the field of nutrition, in his book *Clinical Nutrition* (with F. F. Tisdall, M.D. and Paul R. Cannon, M.D., published by Paul B. Hoeber), states that vitamin B complex is an important factor in carbohydrate metabolism but since this is so, he asks, why did not the medical profession know about it sooner, and why was there so much needless suffering? His answer is that general vitamin B deficiency is a phenomenon of only recent occurrence, dating from the time when industrial processing

of foods began on a big scale. This, he says, has broken the natural connection between vitamin B and carbohydrates. In other words, carbohydrate digestion cannot be accomplished thoroughly without sufficient vitamin B, and since industrial processing of foods removes so much of the B vitamin but leaves the carbohydrate, the natural protection is lost. He says: "Before this occurred (industrialization) the supply of the B vitamins was automatically adjusted to the amount of carbohydrate eaten, so that the occurrence of vitamin B deficiency with its consequent disturbance in nutrition is a comparatively recent development in the Western World." Very true, doctor, as can be seen by the radically mounting figures of deaths from heart disease which coincides with the introduction and increases in these industrialization processings. This is also shown in the Orient where the introduction of polished rice, which removed so much of the vitamin B, caused beriberi disease, which we have already shown, involves the heart.

How to Take Vitamin B

We have seen in a previous article that surveys show considerable deficiency of calcium and vitamin C in the general public. These deficiencies will eventually be shown to be the scandal of our times, for with the scientific skills that exist, there is no reason for them. The status of vitamin B is no different from the others as witnessed by the alarming increases in general chronic illnesses and deaths from heart disease in which vitamin B is a specific factor. It is difficult to get enough of it from the devitalized, processed foods that come to us through the grocery stores. We must therefore take a daily ration of some vitamin B product. Brewer's yeast is one, and desiccated liver is another, but the latter is contraindicated in cases where some heart deterioration exists, the reason being that the iron in the liver destroys vitamin E, and vitamin E is *the* most important vitamin in the prevention and cure of heart disease as will be shown in the next chapter.

Do not take the synthetic, individualized parts of the vitamin B complex such as riboflavin, thiamine or any of the others, because they are made of coal tar and ironically, are too "pure". A product such as brewer's yeast contains valuable "impurities" such as minerals and enzymes which research shows aids the body in its utilization of the vitamin B com-

plexes. Do not take ordinary baker's yeast, which actually will eat up some of the body's vitamins. Brewer's yeast is the only form of yeast that should be taken.

Vitamin Thieves

We have already shown that sugar and alcohol rob the body of vitamin B. There are other practices that do the same thing. The consumption of white flour, prepared cereals and many other refined foods are serious offenders in this regard, because the vitamin B has been removed, but it is badly needed to aid the digestion of carbohydrates. Since it must be obtained from somewhere for this purpose, it is stolen from other sources in the body such as the liver, kidney and the heart.

Sleeping pills should not be taken, for the same reason. The barbiturates block the progress of carbohydrate metabolism and so add to the difficulty of securing enough thiamine.

Raw fish is another thief of thiamine. Dr. Eddy in his book *Vitaminology* tells us that 100 grammes of raw clams contain enough anti-thiamine enzyme to destroy $7\frac{1}{2}$ milligrammes of thiamine. This astonishing fact about raw seafood was discovered on a fox ranch in Minnesota where the foxes were falling ill from a disease that looked like thiamine deficiency, one-tenth of their diet consisting of raw fish. Cooking the fish completely eradicated the illness. Remember, therefore, that raw clams and oysters are brigands and steal large quantities of our limited stores of vitamin B. It is interesting to note that the Japanese who are great raw fish and polished rice eaters, do not have a high longevity rate.

Estrogen, a hormone administered in certain diseases, especially where individuals are inclined to be deficient in the B vitamins will greatly cut down three of the B complexes—thiamine, riboflavin and niacin.

The sulpha drugs are mentioned in all literature dealing with vitamin enemies. Some of the B vitamins are manufactured in our intestines, so that, even if our diet is lacking in B vitamins, we may still get by, so long as the friendly "intestinal flora" go on producing B vitamins for us. The sulpha drugs upset this whole machinery and, if given long enough, they cut off this supply of vitamins. This is why pneumonia patients, for instance, whose doctors give them large doses of

sulpha drugs may recover almost miraculously from the disease, but find that they are left in a state of terrible depression, fatigue and digestive disorder which may go on for years until they catch up on the necessary supply of B vitamins.

Conclusion

We see, therefore, how wrong is the threadbare argument that the increased pace of modern living is the direct cause of heart disease. This is just talk. No one has ever proven that we are going at a faster pace today than we did 50 years ago. We overlook the fact that the public is terribly deficient in important vitamins, their bodies therefore not being strong enough to withstand the first strong gale that blows up. The fibres of their bodies are soft. Given good, substantial nutrition—the kind that it is almost impossible to get with your knife and fork—you will be able to take all kinds of buffettings. With such nutrition we could double our pace and not be aware of it as far as the operation of the body is concerned.

Why are top-level executives popping off with heart disease? Because they are vitamin deficient, and because they do things which rob their bodies of the little stores of the vitamins that are at such low level. They guzzle ice cream sodas, drink too many high-balls, eat white bread, and so on, and so on. They usually smoke, and that is known to rob the body of vitamin C which is so important to heart health. Even our hospitals, where heart cases are being treated, give their patients ice cream and white bread.

Isn't it atrocious?



Sugar—A Handy Instrument For Race Suicide

Here are some of the reasons why sugar is bad for you

"YOU shouldn't eat so many sweets, dear. It's not good for you. Well, just one more." And Mama hands Junior another sweet. Where did we pick up this idea that sugar is not good for us? Even those people who stuff themselves on sweet things all day will mention meanwhile that they know it's bad for them. Have you ever talked to anyone who believes that eating sugar is good for them? "Oh I just can't get along without my dessert," he will tell you. But he won't add that the dessert is good for him.

So in your campaign to get your friends and relatives to stop eating sugar (at least we hope such a campaign will be the result of this booklet) everyone you talk to will know in a sort of indefinite and reluctant way that sugar is not good for one's health. But, before you can get him to delete sugar from his daily meals, you will need a lot more definite and persuasive information than this. We hope that this article will provide you with the further information you need. We also suggest that the content of this article would make good material for a speech before the W.I. or mothers' union, or for a term paper at school.

Isaac Schour, D.D.S., Ph.D., and Maury Massler, D.D.S., M.S., of Chicago have a lot to say about sugar and dental decay in an article in the *Journal of the American Dental Association* for July 1, 1947. These two investigators have contributed much to the literature on dental decay including a brilliant article in which they showed that fluoridated water is quite likely to be harmful to the teeth of badly nourished children, although it seems to postpone decay in children who are well nourished.

Refined Sugar and Dental Decay

In this particular article mentioned above, they discuss the situation in post-war Italy when 3,905 children were examined for dental decay and the figures were compared with dental decay in America. In the Italian age group, 11-15 years, there was an average of 1.05 decayed, missing or filled tooth per child. In the same age group in the United States the average was 4.66 per child. On the other hand in four Italian cities examined, 53.4 per cent of the children between 11-15 years had no dental decay. In the United States only 9.5 per cent of the children in this age group had no dental decay. Figures on older age groups showed a similar story.

Discussing the reasons for this astonishing difference in tooth decay between Italy, a country which suffered greatly during the war, and the United States, where deprivation was certainly at a minimum, the authors point out that the amount of refined sugar available for Italian children was very limited. The Italian children were not especially well nourished, so apparently good nutrition is not the only essential for dental health. These Italian children lacked in their diets many of the healthful foods they should have had. But—and this is the crux of the matter—they also lacked refined white sugar, or at any rate did not have it in anything like the quantity in which it was available to American children. During the years 1930-34 the per capita consumption of sugar in Italy was 18 pounds, as compared to 103 pounds in America.

The investigators continue, "Clapp reported a remarkably low incidence of caries in young adult Italians who were born in Italy and who were living in Bridgeport, Connecticut. He pointed out that they had grown up on the Italian diet and he emphasized particularly the low intake of sugar—about one-seventh that of American boys. On the other hand, Day and Sedwick examined the teeth of 500 children 13 years of age and of Italian descent (whose diet, presumably was now Americanized and high in sugar) and found no great difference between the prevalence of caries in this group and that of American children. This might lead to the supposition that dietary habits have a greater effect on the incidence of caries than does the genetic influence, although the latter cannot be discounted."

The authors also remind us that the average Italian diet is

high in carbohydrates. Spaghetti, bread and so forth make up a large part of it. Some experimenters have shown that carbohydrates produce the mouth acid that leads to tooth decay. But apparently in the case of the Italian children the carbohydrates made no difference. Even though they were badly nourished and their diet lacked many necessary foods, even though they ate a large proportion of carbohydrates in comparison to the amount of protein they had, still their teeth were infinitely better than those of American children who had been living on good diets—but had been eating large quantities of sugar.

One of the most complete discussions of refined sugar in relation to dental health comes to us in a symposium conducted by the California State Dental Association, April 24, 1950, and printed in the journal of that organization . . . *Sugar and Dental Caries*. In this 95 page booklet the speech most interesting to us was that of Dr. Robert C. Hockett of the Sugar Research Foundation, Inc., and the answer to his speech given by Michael H. Walsh, M.Sc., F.R.I.C., Instructor in Clinical Nutrition at the University of California.

A Noted Nutritionist Proves That Sugar Is Not Economical

Here are some excerpts from Dr. Walsh's brilliant rebuttal to the arguments that sugar is an economical food. . . . "If, as he (Dr. Hockett) asserts, sugar is the most efficiently produced food, why do not the commercial hog feeders, beef producers and poultry raisers feed their animals sugar in large quantities? . . . Surely if sugar were the most efficiently produced food, these scientists who are experts in animal nutrition would have advocated long ago the consumption of sugar in large quantities for the feeding of farm animals. . . . By efficiency (Dr. Hockett) means the ability to produce calories, and calories are identified as the only index of nutritive needs of man, without any regard for the need for nutrients such as essential amino acids, essential fatty acids, the many minerals and vitamins without which all the calories of sugar in the world are not only utterly useless as food but are physiologically harmful. What does it profit a man to have a million calories a year in the form of sugar if he does not have the essential nutrients to enable the sugars to be utilized?

" . . . When it comes to animal metabolism, every type of

nutrient must be ingested—prefabricated, so to speak, and in that metabolism of animals—including humans—protein assumes primary importance because it is the essential raw material from which tissues are built. The most favourable development is obtained when proteins, fats, carbohydrates, minerals and vitamins are furnished to the animal organism simultaneously in amounts and proportions which we now know to be desirable; if there are to be limitations on the supply of these necessary foods, sugar cannot substitute for protein, fat cannot substitute for protein, but on the other hand, both fats and sugars can be and are derived from the metabolism of protein.

“Hence when it comes to human diets, there is no object in furnishing sugar unless appropriate amounts of proteins, fats, minerals, and vitamins are also furnished. Refined sugar, because of its highly concentrated form, and being completely devoid of essential proteins, vitamins and minerals, is now regarded nutritionally as a diluting agent of the modern diet. It is a displacer of other factors far more essential than sugar. Thus, the more sugar consumed, the less opportunity for getting essential nutrients into the diet. If sugar is furnished as a replacement of proteins, fats, minerals and vitamins, then serious physiological consequences follow. This is the essence and the crux of the physiological problem we have to deal with not only in dentistry but also in medicine.

“At this meeting the emphasis is on sugar and caries. To me there are far more serious disease problems to be dealt with than tooth decay. Far more teeth are lost today through periodontal (gum) disease than from tooth decay. There is growing and accumulating evidence that the patterns of food habits—including excessive sugar consumption—which are associated with dental decay in childhood, adolescence and early adult life are similar in structure to those of periodontal patients in later life. There is also coming to light, evidence of a dietary relationship between high sugar consumption and polio, rheumatic fever, arthritis and many degenerative diseases.”

The Important Matter of Low Blood Sugar

What is some of this evidence Dr. Walsh refers to? First there is Dr. Sandler’s fight against polio in North Carolina several years ago, when he brought to a standstill a polio

epidemic that had frightened the residents so badly that many of them were willing to try out the diet he recommended. We have published this diet many times in *Prevention*. It is in the book, *Diet Prevents Polio* available from the Lee Foundation for Nutritional Research, 2023 West Wisconsin Avenue, Milwaukee, Wisconsin. The essence of the diet is a reduction of sugar.

Dr. Sandler forbids all forms of refined sugars (desserts, soft drinks, sweets, and so forth) and even limits sharply the amount of fruit to be eaten. His theory is that low blood sugar makes individuals susceptible to polio. Low blood sugar is brought about by eating sugar, paradoxical as this may sound. Eating sugar brings up the blood sugar level for a short time, but then it plunges down far below normal. This makes you feel uncomfortable and you need something sweet again, so you have an ice cream, a sweet or a doughnut, and the blood sugar rockets up again, only to fall much too low a little later. As you can see, the net result is a vicious cycle of eating more and more sweets all the time, just to keep going.

Polio is not the only disease related to low blood sugar. Dr. E. M. Abrahamson in his excellent book *Body, Mind and Sugar* (published by Henry Holt and Company, New York), tells us that low blood sugar is far, far more prevalent in America than its opposite—high blood sugar, which is diabetes. Recommending a diet very similar to that of Dr. Sandler, Dr. Abrahamson relates spectacular cures for asthma, alcoholism, neuroses, fatigue, rheumatic fever, ulcers, epilepsy, depression, and so forth—the list is encouraging.

What About Mosquito Bites?

Insect bites are probably not a very serious menace to health, except in countries where malaria is prevalent. But insect bites can spoil a vacation, cause loss of sleep, ruin one's appearance and otherwise be a pesky nuisance, especially when one is dedicated to avoiding insecticides. Over the years we have accumulated an amazing file of information on the relation of sugar-eating to susceptibility to insect bites. The only possible conclusion we can draw is that insects simply do not bite people who eat no sugar, we suppose because of the excellence of their blood chemistry. Here is a letter that came in the other day from a reader—a sample of many in our files:

"A friend of mine was working in northern Canada where there was a settlement of Indians. It was during the black fly season and it was quite evident that the flies were concentrating on jabbing me, while the Indian chief who sat nearby was entirely free of them. My astonished friend asked why. The chief's reply was 'One month before the black fly season all Indians naturally know enough to leave all sugars from their diet'." We civilized people, with all our knowledge of chemistry, have not figured out a number of basic facts about nutrition that are well known to primitive people.

Editor Rodale confirms this story with an observation from his own experience. He visited Dr. Page in Florida and discussed his work on minerals and sugar. "When that was explained to me," he says, "I immediately realized that I wanted to have my blood as healthy as possible, and began to severely eliminate all these artificial sugars. It meant, however, that I could eat fruits and such things as honey and molasses in moderation.

"That summer I noticed that I was practically immune to mosquito bites. When all others were complaining about being bitten, I was not. And when I discussed this matter with an aunt of mine, who has diabetes and who also has to forgo artificial sugars, she said she has had the same experience. She does not get bitten by mosquitoes."

Here is a quick review of several other articles that have appeared in *Prevention* on other aspects of sugar consumption. J. W. S. Lindahl, M.Chir., F.R.C.S., writing in the December, 1951, issue of *The Practitioner*, says, "It has been suggested that one predisposing factor (in tonsilitis) is an unbalanced diet with too much sugar and starch in relation to protein and green vegetables and I believe there is much to be said for this theory."

Dr. Sidney A. Portis of the University of Chicago believes that a diet *low in sugar* will reduce fatigue, according to the *Journal of the American Medical Association*, Volume 142, 1950. Dr. Portis, a nervous and mental disease specialist, says that an excess of emotion stimulates the pancreas, resulting in low blood sugar.

Sugar and Vitamin B Deficiency

In a past issue of *Prevention* Editor Rodale says, "I had

a very interesting experience recently in meeting with a former aviation pilot who was active in World War II. He related to me an experience. He suffered from blackouts which would take only a few seconds; but in a plane that would be a very serious and dangerous thing. The doctors cured him by giving him vitamin B1. This would seem to indicate that airplane pilots should not eat the sweet foods such as ice cream, pies, pastries and others that contain artificial sugars, including cola drinks, because the chances are, if this pilot had been on a diet that did not take in these artificial sugars, he probably would not have suffered from these blackouts which were caused by vitamin B1 deficiency and cured by taking vitamin B1."

We have stressed over and over again in *Prevention* the price we pay in vitamin B for eating white sugar. As we have shown in another article, natural sugars, as they occur in fruits and sugar cane, have with them the full assortment of B vitamins that are necessary for the assimilation of the sugars, and its use by the body. As we have seen, none of these B vitamins are present in white sugar. But, if the sugar is to be used by the body they must be present. So they are drafted—from nerves, muscles, liver, kidneys, stomach, heart, skin, eyes, blood. Needless to say, this leaves these organs of the body deficient in B vitamins. Unless a tremendous amount of vitamin B-rich food is taken, this deficiency will become worse and worse. As more sugar is eaten, more B vitamins are stolen.

Look around you. We are a nation of sufferers from "nerves", digestive disorders, tiredness, poor eyesight, anaemia, heart trouble, muscular diseases and a hundred assorted skin diseases. How much of this suffering is due to lack of the B vitamins caused by the amount of sugar we eat every year? No one will ever be able to answer that question precisely, but we are willing to hazard a guess that nine-tenths of these troubles would disappear within a year of the time that white sugar was banned from our tables and from our food.

Do you suffer from any of the above complaints? Are you "nervous" and tired, do you have any kind of digestive disorder or skin disease? Are you willing to try an experiment to see just how much the eating of white sugar has to do with your complaints? For six months drop sugar from your menu. No half-way measures are permitted. You may eat *nothing*

that contains refined sugar. This means no bakery products, no sweets, soft drinks or chewing gum, no ice cream, canned fruit (unless it is packed without sugar), no sugar in your beverages or on your cereal. You may and should eat lots of fruit and vegetables, meat, eggs, cheese, nuts and fish. In addition you should certainly take brewer's yeast or desiccated liver which contain all the B vitamins. For, if you have been in the habit of eating white refined sugar you are almost bound to have a serious vitamin B shortage.

For the first week or so you'll probably suffer gnawing hunger for sweets. Satisfy your hunger with something else. Eat an apple, a handful of nuts, a piece of cheese, a raw carrot. When you stop with friends at a cafe, order milk, fruit juice or tea (with no sugar). Fresh fruit and cheese is a wonderful dessert and once you have become accustomed to ending a meal with fruit and cheese you'll wonder why you ever wanted all those gooey pastries and sticky pies and cakes. In another chapter we give you more hints on how to get along happily and healthfully without sugar.

Sugar and the Calcium- Phosphorus Balance

Research done by an American dentist shows a vitally important relationship between sweets and good health

AN entirely different approach to the problem of sugar intake is presented by Melvin Page, D.D.S., of Florida, in his book *Degeneration and Regeneration*, published by the Biochemical Research Foundation, 2810 First Street, North, St. Petersburg, Florida. Says Dr. Page, "We have had up to now no device whereby which we could test the ability of our body-chemistry to withstand strains and exposure to disease. A measuring stick has now been found." He then discusses the importance of minerals in the diet and says "much research has led me to the discovery that the secret lay not in the amount of these minerals, but in their proportion to each other." The outstanding important element is the relationship of calcium to phosphorus in the bloodstream, which should be two and a half to one. "On the basis of 20,000 tests taken during the past 20 years, we can state that in clinical cases, in the adult, the critical point is reached when the calcium shows 8.75 milligrammes per 100 cc of blood and when the phosphorus shows 3.5 milligrammes per 100 cc of blood. Below these amounts for either calcium or phosphorus there is a withdrawal of minerals from the dentin and bone, and above these amounts a reserve is maintained.

"... There has been a great deal of talk about sugar being a cause of dental decay. Directly it is not, but indirectly it is." Dr. Page then relates the case histories of several patients whose blood chemistry he studied. In several of them he could find no reason for sudden changes in an excellent blood chemistry, until they confessed that just recently they had fallen into the habit of eating sweets. He then tested the blood of other patients and immediately gave them sweets to eat. With-

in two and a half hours there was a difference of nine points in the usable calcium and phosphorus in their blood streams.

Arthritis, Cancer and Sugar

Pyorrhea, an inflamed condition of the gums is actually a form of arthritis, says Dr. Page, although it is not called that because of its location in the body. "In a series of several hundred arthritics," he says, "nearly all consumed large quantities of sugar. Sugar disturbs the calcium-phosphorus balance more than any other single factor. It disturbs it in the direction of higher calcium and lower phosphorus. When the effect of the sugar has worn off, there is a rebound in the opposite direction, for action equals reaction."

"Someone might ask, why not use sugar to maintain better equilibrium of calcium and phosphorus levels. . . . First of all, it cannot be done effectively without taking just the right amounts at frequent intervals and secondly the method increases the deficiency already existing—adding fuel to the fire so to speak. Sugar is a drug and at times can be used for the purpose of raising the calcium level and lowering the phosphorus level. But its use would be for temporary effect only." In summing up his thoughts on nutrition, Dr. Page lays down two rules: 1. Our diet must not contain any harmful things; 2. It must contain all things necessary to the human body. If these two rules are obeyed, health can be attained and maintained, for adequate nutrition means calcium-phosphorus balance and good health. Refined sugar is not necessary. Refined sugar is harmful, so a sugar-eater has violated both rules for health.

"What is the result of a total discontinuance of sugar?" asks Dr. Page. Do we fail from loss of energy? Do we become tired and worn? Does our food become tasteless? Sometimes we have all these symptoms but only for a few days. A re-adjustment must take place in the body. We have to learn all over again to use our built-in resources.

"It is remarkable how soon we do this. How soon we feel better than we ever did. How soon our tastes recover their sensitivity so that we find flavours in food that we never realized were there. . . . You know you cannot hear ordinary conversation in a boiler factory. Neither can you taste ordinary flavours when the strong chemical sugar is making such a

din. . . . Dr. Otto Meyerhof of the University of Pennsylvania Medical School and the 1923 Nobel Prize winner in medicine stated that possibly growth of cancerous tissue might be stopped if biochemists could find a safe way to curb the appetite of tumours for sugar." This article, incidentally, appears in the magazine *Drug and Allied Industries*, Page 28, Volume 35, Number V, May, 1949.

"We believe that the sugar level of the blood is even more important than Dr. Meyerhof states. We do not remember seeing a single cancer case who had a correct sugar level, yet in most non-cancer cases this is easily obtained by means of a sugar-free diet alone." He then describes a case of skin cancer of the face which cleared up entirely within a few months when the patient gave up drinking daily twelve bottles of a widely distributed soft drink.

Here are some more quotes from Dr. Page's book, which we believe should be on the shelves of every health-conscious reader of *Prevention*.

Sugar and Civilized Man

"The two greatest changes in nutrition have been from the whole grain flours to white flours, from few sweets and those natural, to refined sugar and that in large quantities. These two things, white flour and sugar, are the most common and the most harmful elements in our diet. They have been in use only one hundred to one hundred and fifty years, which is a long time if you think in terms of your life and mine but not when you think in terms of civilization as a whole. In plant life alterations can be developed or new species brought into being but it is a process of selection and repeated reproduction involving generations of plant life. Changes in man come just as slowly if not more so because though we use scientific methods to produce plants, we are hit-and-miss about the propagation of man. To make radical dietary changes in one hundred to one hundred and fifty years is to court disaster. The human mechanism is not adapted to such rapid changes. Our bodies are capable of adaptation but it must be a slow process covering many generations.

"Sugar, the ultra-refined sweet, has had every element but sweetness removed and is lacking in both minerals and vitamins. It is a popular item of diet, especially in America. As

previously noted in the discussion on dental decay, it has a deleterious effect on the calcium-phosphorus levels, the health indices, of our bodies. A brief explanation of the relationship of sugar to our bodily processes may make clear the reason for this harmful effect. Sixty-eight per cent of the food we eat is broken down through bodily chemical processes into sugar. Sugar, water, the amino and fatty acids, and mineral salts in solution are capable of permeating the intestinal wall and directly entering the blood stream. If we take refined sugar, a general requirement of our table, into our systems, it does not need to be changed greatly in order to permeate the intestinal wall. It is nearly ready to enter the blood stream and it does so in a flood. And as in any flood, someone must come to the rescue to prevent disaster. . . . If there is more than one teaspoon of sugar in the entire blood stream or less than one-half teaspoon, we court disaster. . . . But we are most remarkably built and the liver and the pancreas form a rescue team and turn this sugar into glycogen and store it for future use. Now that may be very well in an emergency, but think of the abuse which most of us inflict on our systems daily. It is astonishing that any of us are well. And when you consider that the intake of sugar increases the calcium assimilation and that resistance to degeneration and bacteria are dependent upon the maintenance of a proper ratio between calcium and phosphorus, you can not but be impressed by the necessity to use this drug with care. As mentioned earlier, nine chocolates can throw the calcium-phosphorus levels out of balance within two and one-half hours and keep them below the margin of safety for immunity to dental decay at least thirty-two hours. Seventy-five per cent efficiency of the human machine will maintain good teeth but that is too low a degree to prevent the occurrence of other degenerative diseases. It would be laughable if we were to represent machines in the open market as only seventy-five per cent as good as they could be made.

There Are Exceptions

"You can all point to So-and-So who is healthy and takes sugar by the carload in his coffee or So-and-So who just lives on soda pop—one bottle of cola generally contains four teaspoons of sugar—and still keeps well. This is true, firstly, because there are exceptions to all rules and secondly, because

many do not begin to pay for their extravagances until late in life. But look at their children and grandchildren. Do they hand down bodies as strong as those which they inherited? Natural sweets such as honey, molasses and maple syrup can be used within reason. They do affect the calcium-phosphorus levels but since they are not pure sweet and do contain essentials of diet, their presence among our foods is not as injurious as refined sugar. In generations past sugar was never found alone. It was always accompanied by other materials that the body needed. Sweet is just the label on the package.

"A scientific experiment with the sea-anemone, a water organism, provides an amusing illustration of the folly of being misled by labels. Sea-anemones live on meat but it is the creatine in the meat which attracts them. That is their one sense of taste. However, if the meat from which the creatine has been extracted is placed in the water, the sea-anemones ignore it, but if blotting paper soaked in creatine is placed within reach, they eat it with relish. They eat the label and leave the substance. Silly isn't it? But how about us?

"When we use free sugar we do so at the expense of the other essentials to the body. Our total caloric intake of food may not be changed, but the proportions of the heat producing and cell-replacing ingredients are considerably altered. In this respect the use of sugar creates a deficiency in these other materials. In every instance where a patient has habitually used refined sugar, deficiencies have existed in the other factors of an adequate nutrition, particularly as regards the vitamin B complex."

The Story of Sugar

**Background and history of the white drug
that is killing us by the thousands**

THE story of sugar seems to be one of the finest examples of man's inability to let well enough alone. Considering all the splendid and worthwhile improvements man has brought to his environment, it seems almost incredible that this same being, man, could also have invented and perpetrated one of the most serious and stupid mistakes in history—a mistake which, as one doctor of our acquaintance prophesies, may very well end our civilization within a few generations.

The story of sugar is a story of stupidity, greed and ignorance. It is the final devastating removal of man from his natural environment. We are talking now of white sugar—the sugar you buy at the grocery store—white, crystal, delicious, "pure". Throughout this booklet this is the sugar we mean when we say sugar. When we are speaking of *natural* sugars—from fruits, vegetables, honey and so forth, we will qualify them as natural sugars.

The chemistry of sugar is complex and we will not trouble you with it. There are many different kinds of sugars, chemically—fructose, glucose, sucrose, dextrose, lactose and so forth. They differ from one another in the chemical structure of their molecules. They are all carbohydrates. In other words, when you read or hear the word carbohydrate, as different from protein and fat, you will know that what is meant is sugars and starches.

The carbohydrates are the energy-giving foods, as separate from the proteins, which are the body building and repairing foods. We are told that 68 per cent of the food we eat is changed by the body into sugars to produce energy. The other 32 per cent is used for building and repairing the body. Not only sugars and starches but also fats and proteins can

be changed by the body's marvellous mechanism into the kind of sugar that the body needs to produce energy. So it appears that we need sugar! Why therefore did we say that the story of sugar is the story of man's most colossal mistake? We do need sugar, yes, but the important thing is the *kind* of sugar we need.

Why Do We Like Sugar

We have developed a taste for sweet things. Sweet things are delightful to eat. Melvin Page, D.D.S., in his splendid book, *Degeneration and Regeneration* (published by the Biochemical Research Foundation, 2810 First Street, North, St. Petersburg, Florida), tells us we were given a desire for sweet-tasting foods because, in natural foods, a number of very necessary food elements exist in combination with a sweet taste—vitamins and minerals, to be exact. Now a vitamin in the quantities in which it appears in food has no taste, so wise Mother Nature teams up a sweet taste with a number of vitamins. We need vitamin C if we are to live in good health for even one day. But we cannot pick vitamin C off a vine or tree and no amount of persuasion will get us to eat vitamin C if it has a disagreeable taste.

So vitamin C comes ready-packaged in cantaloupes, strawberries, guavas, oranges and so forth and we eat them actually because we have a need for the vitamins they contain. But we *think* we eat them because of the sweet taste. One-half cup of carrots is a compact little bundle of 4,500 units of vitamin A, but nobody would eat them if they tasted bitter. So our taste for sweets is a reliable guide to foods that are good for us. But this guide is reliable only so long as the foods we have to choose from are natural foods that man, in his matchless inability to let well enough alone, has not tampered with.

What We Mean By "Refining"

Most of us are not familiar with sugar cane, so let's take as a sample grapes, which are rich in sugar. What could be more enjoyable than pitching into a big dish of luscious Con-cords, purple and dewy and fresh from the vines! And healthy, too, for grapes come equipped with vitamins A, B and C, calcium, phosphorus, iron and many more food elements that are good for you, as well as all the substances your body needs to digest them.

Now suppose somebody—a chemist or scientist with a lot of degrees behind his name—came over to your dewy grape arbour and told you he was going to “improve” your grapes. He was going to put them through a process that would guarantee that they would keep practically for ever, so that you could have them, in condensed form, on your table. You could flavour all your foods with their sweet taste, summer and winter. In addition he would “purify” your grapes. This purification process wouldn’t mean much to you, except that you have come to believe that “purified” foods are somehow better, because they have no dirt in them, no germs, nothing extraneous. But, on second thought, what needs to be “purified” about your grapes as they come from the vine? Nevertheless your scientist proceeds with his terribly complicated and expensive process, which somehow, due to our technological genius, results in a product that is much less expensive than grapes, keeps indefinitely, tastes sweet and can be bought at any grocery store the year round.

Now we’ve solved all our problems. But have we? Let’s look a little more closely at this very practical, sweet inexpensive pretty-looking product you can use to your heart’s content in cakes, sweets, biscuits, lemonade and coffee. Any vitamin B in it? Not an atom. Any vitamin A or C, any iron, phosphorus, calcium? Not a sliver. What then is left? Nothing at all is left but the sweet taste and the pure carbohydrate which will give you calories and nothing else. For your clever scientist has stripped the grapes of every vestige of food value and has left you only the sweet taste which, remember, was put there by nature to guide you to the healthful food elements that were in the original grapes. Would you say that the scientist was clever or would you say he had made a colossal mistake?

Nobody has yet discovered how to make a satisfactory, practical table sugar out of grapes. But the story above is precisely what happens in the manufacture of table sugar from sugar cane or beets. From the point of view of commerce, the refining of sugar is a stroke of genius, but from the point of view of human welfare it is one of the world’s greatest tragedies.

History of Sugar

“Since we have no satisfactory knowledge of the begin-

nings of the culture of sugar cane, we can only infer that it was cultivated in north-eastern India long before the Christian era. The earliest reference to sugar is contained in the comments made by several officers of Alexander the Great during his Indian campaign in 327 B.C.. says Andrew Van Hook in his book *Sugar*, published by the Ronald Press, New York City. He goes on to say, "It was still to be almost 1,000 years before the consumption and cultivation of sugar began to spread beyond the borders of India. During this time, however, its sweet and honey-like nature became known and was mentioned by such writers as Theophrastus, Herodotus, Discorides and Pliny." So we see that human beings have arrived at eating sugar from sugar cane in recent times, in term of man's life here on earth. The Arabs and ancient Egyptians used sugar. The Chinese were using sugar when Marco Polo visited them in 1270-75. As history moved forward and the medieval crusades brought knowledge of eastern ways to Western Europe, the use of sugar spread and eventually of course got to America. Among those early Europeans only the very wealthy could have sugar on their tables, because it was expensive to import. In the western hemisphere sugar cane planting and slavery went hand in hand. In North and South America the tall sugar cane with its waving tassels was soon a familiar sight. "The sugar in those days was a highly impure and dark product which was shipped to the refining cities of the motherland countries for further processing," says Van Hook.

What exactly does he mean by that? He means that, to collect and ship the sugar, certain things had to be done to it, but in those days men didn't know how to remove all the dark coloured substance (containing the vitamins and minerals). So their sugar was dark and sticky and difficult to handle—but much more nutritious than the white sugar we have today. It doesn't seem far-fetched to guess that none of us in the western world would be alive today if those old-timers had had the technical skill we have for "refining" foods.

As scientific knowledge developed, ways and means were discovered to refine the sugar still further. As refining processes grew more general, sugar became cheaper and more popular. In America the first refining plant was established in New York in 1689. By the middle of the nineteenth century

sugar refining as we know it today had developed. Meanwhile someone had discovered that sugar could be made from beets which will grow in climates where sugar cane will not grow. By 1940 the United States was producing well over two million tons of sugar per year *and consuming more than seven million tons!* A recent estimated value of the world production of sugar was two billion dollars, only a little less than the value of all the iron and steel produced in the United States. (Incidentally it is also interesting to note that the cigar and cigarette industry of America was valued at one billion, two hundred million dollars in 1939.)

In 1939-40 the people of the United States consumed 106.5 pounds of sugar per person—that means almost one pound every three days, *per person!* Taking into account all the babies and the sick people who dare not eat sugar, what kind of an average does that leave for the rest of them?

The Refining Process

There is no need to follow a piece of sugar cane through all the various complications of the refining process, but here are some of the substances used to produce those sparkling white crystals: lime, phosphoric acid, special clays known as diatomaceous earth, bone char, boneblack or animal charcoal. To powdered or confectioners' sugar, corn starch or calcium phosphate is added to keep the sugars from caking. In producing lactose or milk sugar which is used mainly in infant foods, "the whey is first clarified with lime, decolorized with carbon and then concentrated and crystallized," says Mr. Van Hook. In refining beet sugar, lime, carbon dioxide and sulphur dioxide are involved in the "purification" process.

In harvesting sugar beets, the tops are carefully cut off while the beets are still in the field. The sugar beet industry has had some difficulty in disposing of its "wastes" which ferment easily. We put that word in quotations, for of course the "wastes" in sugar beet refining consist of everything that is worthwhile as food in the beet and beet top. But just as we finally learned that the germ and bran from refined wheat make good food for cattle, so we discovered that cattle thrive on the "wastes" from beet sugar manufacture. Why shouldn't they thrive? In the wastes are concentrated all of the vitamins and minerals from the beets. Out of the whole procedure, the

human beings involved—and this means you and me—get once again only the pure carbohydrate, stripped of all food value except calories.

The Food Value of Sugar

Following through on this whole senseless waste of good, healthful, wholesome food in a two billion dollar industry, do you get some idea what we mean when we use harsh and violent language in speaking of white, refined sugar? In the most sweeping evasion it has ever been our misfortune to meet in modern literature, Mr. Van Hook in his book *Sugar* has this to say about the food value of the product he is writing about: "In spite of its prominent place in the diet all over the world, the role of sugar as a food has never been completely ascertained." Obviously, Mr. Van Hook, because it has no role as food. Applying even the most lax and generous interpretation to the words "food" and "nutrition" no one can show that white refined sugar has any place at all in the diet of any living thing. In speaking of the fashions in sugar all over the world, Mr. Van Hook says, "In the United States a hard, white sugar of high purity is usually demanded, but in Europe considerable tolerance is allowed in respect to colour. Native sugars (this means the sugars of those backward savages who are not as civilized as we) are soft, dark coloured and impure, and the purity (that is, the per cent of sucrose in total dry product) is often as low as 60 or 70 per cent. *Whether or not American standards mean a superior product in nutritional value is questionable.*" We italicized that last sentence to emphasize it, for it seems to us a masterpiece of understatement. Certainly any literate person with any nutrition chart before his eyes can readily see that white refined sugar has absolutely no nutritional value whatsoever, so why do we need the half-hearted word "questionable"? So the uncivilized world which does not have our technical excellence has to be content with dark sugar which includes at least some (perhaps 30 to 40 per cent) of the original food elements of the beets and cane, while we civilized people deliberately choose to eat the pure, white worthless chemical left after refining.

Or do we "deliberately choose" to eat white sugar? Throughout all our research on sugar we found again and again the suggestion that the public just won't have a dark

sugar. No sir, they tell us, it must be "pure" and white as snow or Mrs. Public will reject it scornfully. Mrs. Public is a refined and cultured lady, they tell us, and her angel cakes must be white as moonlight, her boiled frosting pearly as Mt. Everest on a clear day, even the sugar she dumps into her morning coffee must glisten with silvery lights in her sugar bowl. Somehow we feel that this assumption is a libel on the good sense and practicability of us all. We are absolutely certain that, if the gentlemen of the sugar industry would go to Mrs. Public through the pages of her favourite magazines and in the commercials of her favourite television programme, and would tell her the full story of sugar cane and beet sugar, would show her exactly what is subtracted from the cane and beet in the process of refining and would explain to her what is left in the pure white sugar she uses every day, Mrs. Public would not only change her mind practically overnight about white sugar, but would march in a body to the Government and fight for legislation to make white sugar illegal!

And oh, what changes we'd have at the county fair and the mothers' union cake sale! For the darkest angel cake would win the blue ribbon. And the cupcakes with the deep brown icing would sell best. To say nothing to the wonderful new opportunity for home economic experts to dream up new recipes requiring raw sugar, blackstrap molasses and honey!

Blackstrap Molasses As Food

What about blackstrap molasses anyway? Is it really the fountain of youth, guaranteed to banish any and all ailments and put hair on the chest of the scrawniest boy scout? No, we don't think so. But we know—because we read nutrition charts—that blackstrap molasses is a food, and a good food. Sugar is not. See for yourself. Here are the vitamins and minerals in one hundred grammes of sugar and one hundred grammes of blackstrap:

	Molasses	Sugar
Calories	220	400
	(All these are B vitamins)	
Thiamine	245 microgrammes	0
Riboflavin	240 microgrammes	0
Niacin	4 milligrammes	0
Pyridoxine	270 microgrammes	0
Pantothenic acid	260 microgrammes	0
Biotin	16 microgrammes	0

(These are Minerals)

Calcium	258 milligrammes	1 milligramme
Phosphorus	30 milligrammes	trace
Iron	7.97 milligrammes04 milligrammes
Copper	1.93 milligrammes02 milligrammes
Magnesium04 milligrammes	0
Chlorine	317 milligrammes	trace
Sodium	90 milligrammes3 milligrammes
Potassium	1500 milligrammes5 milligrammes

Where does molasses get all these vitamins and minerals? Obviously these are what is left when the sugar cane is refined. These are the vitamins and minerals Nature put in the original sugar cane to nourish you after you had discovered that the sweet taste is pleasant. But blackstrap molasses is "impure" scream the writers in the big popular magazines! That's right, folks, it is "impure". And the "impurities" are vitamin B, calcium, phosphorus, iron and other minerals which are completely essential to human nutrition. Blackstrap molasses doesn't taste as good as sugar until you get used to it. It doesn't look pretty in your sugar bowl. And blackstrap molasses that has been prepared for use in cattle food is not for human consumption of course. But blackstrap molasses for human beings (and most grocery stores carry it these days) is every bit as free from germs and dirt as any other food that must pass Government inspection.

In the following pages we will show you what harm white sugar does to your body. It's not just something you can go right on eating, you know, so long as you eat good foods, too! Anything you put into your body that does not belong there is harmful, you may be sure. White sugar is a drug to which we have become addicted. You will see in the following pages what devastating inroads on health have been made by this particular drug. As you read, keep in mind that the average person (adult and child alike) consumes in toto about a pound of this drug every three days. Keep in mind, too, that white sugar and white flour (another completely worthless food) make up well over 50 per cent of the average diet.

After you have read, dump the contents of your sugar bowl and sugar canister into the dustbin and start a new life!

Sugar and Cancer

LET us see what various physicians have done and said about sugar. Dr. John A. Shaw-Mackenzie in his book *The Nature and Treatment of Cancer* (1906) said:

"As long ago as 1845, Macilwain maintained it to be a pure assumption that cancer is incurable by the powers of Nature. This observer referred the causes to errors in diet on non-assimilation of food, sedentary habits, the free use of alcohol, and of greasy, fatty, and saccharin matter. He rigidly dieted his patients, excluding sugar, as some authorities at the present day also do."

Here is a quotation from Hoffman's book *Cancer and Diet* previously mentioned:

"J. Ellis Barker, a layman, in 1924 published a substantial volume on Cancer, How it is Caused; How it can be Prevented, with an introduction by Sir W. Arbuthnot Lane, which attracted world wide attention and is often quoted. The book is largely concerned with the dietary aspects of cancer which cannot be abbreviated to advantage. He emphasizes the importance of vitamins and concludes in part:

"Modern civilized feeding has two great characteristics. Civilized nations are being starved of vitamins in the form of green vegetables and especially of uncooked vegetables, such as salads. They are starved of vitamins in the form of the outer skin of every kind. They are starved of the vitamins contained in uncooked milk and in fresh meat. While civilized men and women are being starved of all these essentials, they are being supplied with a super-abundance of sugar. The increase in the consumption of sugar has been as extraordinarily great and as rapid as has been the diminution in the consumption of vitamins.

"He calls attention to the enormous increase in the per capita consumption of sugar, quoting Hutchinson to the effect that in strong solution sugar is an irritant to the tissues. In

contact with the skin, it is apt to set up superficial inflammation. Furthermore he observes:

"The instinctive feeling of hale, old people and of the most experienced old practitioners that immoderate consumption of sugar is very harmful is borne out of observation and by the latest discoveries of science. Everybody knows extravagant sugar-eaters. They are usually chronic dyspeptics. Very bad odours emanate from them, and they have a wretched complexion. As a rule, they are very constipated and are bad-tempered. Overfondness of sweets almost invariably goes together with a dislike of vegetables and of fresh fruit and of fresh meat. Thus over-indulgence in sweets seems somehow or other to lead to vitamin starvation with all its very serious consequences."

Hoffman mentions Dr. Bernhard Fischer-Wasels, Director of the Pathological Institute of the University of Frankfort, who in a monograph on *Methods of Preventing Cancerous Diseases* was emphatic in pointing out the danger and harmfulness of an excessive carbohydrate nutrition, and the danger and harmfulness of excessive sugar intake.

Sugar, the Diluting Food

Hoffman quotes C. V. McCollum, who is one of the world's greatest nutritionists, as saying:

"Nature did not intend that we should eat much sugar, such as glucose and cane sugar, else our natural foods would have contained more of them. Primitive man never had sugar in amounts greater than are afforded by sweet fruits, except when he secured occasionally a temporary supply of honey. Nature provides starches in abundance, and these we digest into simple sugars. This process requires considerable time, so that several hours elapse between the eating of a few ounces of starch and its complete absorption from the intestinal tract. When we take sugars which are soluble and easily absorbable, they tend to enter the blood too fast and to tax the body's capacity to take care of them. If much sugar is eaten at one time, there is a tendency to create a high tide of sugar in the blood. This is a very undesirable condition to establish since it taxes the pancreas. . . . We should never lose our appreciation of the bland flavours natural to fruits, vegetables, meats, etc., through masking them with sweetness,

spices, pepper, flavours, acids, etc. . . . We are as a nation, eating so much sugar that we are crowding out of the diet a considerable amount of other foods which would be far better for us than is sugar." Hoffman follows this with his comment: "It may be pointed out in this connection that the United States has the highest diabetes death rate in the world and the death rate continues to increase from year to year, regardless of insulin treatment which inhibits the disease but does not cure it."

Plimmer and Plimmer in their treatise *Food and Health* (1925) said:

"Not so very long ago sugar was a rare luxury kept under lock and key in the tea caddy. At the end of the eighteenth century the manufacture of beet sugar was begun in Germany and the industry developed rapidly and lowered the price of sugar. Its consumption has increased enormously and is still increasing in all civilized countries. The Americans, with their love of sweets, are the largest sugar eaters in the world. Incidentally, cancer and diabetes, two scourges of civilization have increased proportionately to the sugar consumption."

Hutchinson and Mottram in their book *Food and the Principles of Dietetics*, say:

"The second factor which influences the digestibility of a sugar is the degree of concentration of its solution. In strong solution sugar is an irritant to the tissues. In contact with the skin, it is apt to set up superficial inflammation. This is familiar in the form of the eczema which is apt to appear in diabetics from the contact of the sugar-containing urine with the skin, and from the similar condition occurring on the arms of grocers and other persons who have frequently to handle sugar, and it is on account of its irritating properties that sugar cannot be used as a subcutaneous ailment (food), though otherwise well adapted to fulfil that function. All attempts to use it in that fashion have been frustrated by the pain which it sets up. The same is true of the stomach."

In other words these two doctors show that excessive use of sugar irritates the stomach and the intestines. They state further:

"This irritating effect on the mucous membrane is accompanied by the production of much mucous and the pouring out of a highly acid gastric juice. These irritating effects seem

to be much more pronounced in the case of cane-sugar than in that of glucose."

Hoffman continues:

"J. Ellis Barker, in an extended discussion on *The Faults of Modern Feeding*, quotes a paper by Dr. Nathan Mutch, concluding that, 'We cannot wonder that heavy consumption of sugar leads to gastrointestinal disorder of every kind, followed by various serious diseases, among them cancer'."

In a French health magazine called *La Vie Claire*, there appeared a series of articles entitled *White Sugar and its Effects on the Body* by Dr. Victor Lorenc which describes certain conditions caused by consuming white sugar. He states:

"Chronic excess of glucose in the blood is a very serious condition. A few dentists who are at the same time scientists have definitely noted that explosive gingivitis (loss of teeth) accompanies chronic excess of sugar in the blood. Eye doctors also agree that this excess threatens the soundness of the sight." He states further:

"This sugar is a soluble food of which nothing slows down the delivery. It falls into the intestine as though from a water-spout, transforms itself in the twinkling of an eye into glucose, and overexcites the intestinal villi, which send it in mass to the liver. Now our liver has been conditioned by a thousand years in the past which knew nothing at all of the avalanches of glucose let loose by today's industrial sugar. Thus the liver cannot prevent a temporary excess of sugar in the blood. Each cell of the body will have to suffer for this defeat, including those of the liver itself."

Effect on Nervous System

Dr. Lorenc comments in an interesting manner on the effect of sugar on the nervous system. He says:

"The few doctors who have compared a diet of industrial sugar with a good diet which is free of it, have been able to observe the nervous irritation which sugar causes in children. Because they are more delicate, women and children show more clearly the effects of industrial sugar. With women, sugar causes pains during menstruation. Here is the case of Sophie Zaikowska. An old woman, she has been a vegetarian since 1902, but she used to take a daily consumption of approximately 100 grammes of industrial sugar. At the age

of 30 her menstruation became extremely painful. This discomfort disappeared completely with the suppression in 1911 of this 'murderous food'.

"Since that time we have been able to observe many analogous cases. This fact ought to be known and spread abroad by workers with women. Sugar abstinence rids a woman of what is known as 'natural weakness', that is to say, of nervousness and incapacity to work which are often the result of difficult menstruation.

Sugar Brings on Fat Which Is Dangerous

"Sugar brings a brutally copious afflux of glucose to the liver, which stores as much of it as it can. Nevertheless, it cannot hold more than 150 grammes of glycogen, so it transforms the excessive glycogen into fat globules, which are distributed a bit here and there throughout the body, especially in regions where the muscles do little work: over the stomach, over the hips, and under the chin. Fat is not to man's advantage; it is rather a source of trouble. Young people are generally thin, but with age the body defends itself less well. After 30, the fattening effect of industrial sugar shows up more intensely with many people."

"According to a study undertaken by the collaboration of 43 life insurance companies on three numerically equal groups of people over 45, the incidence of diabetes in these groups showed up as follows: in the group of *very thin* people there was one case, in the *normal* group there were five cases, and in the *fat* group there were 227."

Sugar and Dental Caries

I now would like to discuss or quote from a publication by Paul H. Belding, D.D.S. and L. J. Belding, M.D., entitled *Dental Caries*, from the Research Department of Upper Iowa University. I know both of these men personally and am familiar with and have always admired their work and research on the health and welfare of human teeth. Paul Belding is editor of the old established dental journal called *Dental Items of Interest*.

The Beldings attack the use of industrial sugar as being a cause of serious disturbance in the alimentary tract which starts in the mouth. Let me quote:

"Human experience suggests that it is not excessive indulgence in carbohydrate *per se*, but generally the addition of one specific carbohydrate, namely refined sucrose, to any kind of diet, which leads to the production of *caries acuta*. This observation is well supported clinically, experimentally, and by anthropological investigations. The Michigan School, under the dynamic guidance of Bunting, has shown that in institutions over which it had rigid control of diet, the initiation of caries could be caused, or the activity of this disease terminated, simply by the addition or deletion of sweets from the diet.

"The Iowa Group, under the no less brilliant leadership of Boyd and Drain, by making use of a diabetic diet, though not subscribing to the Michigan explanation, have confirmed Bunting's observation that caries can be controlled clinically by the use of diets low in sucrose.

"Waugh in his noteworthy studies was perhaps the first one to produce intentionally experimental caries in humans and to establish conclusively that without sucrose *caries acuta* does not occur. In feeding experiments among the primitive Eskimos, Waugh, excluding sucrose, found that they could eat any carbohydrate including white flour and the natural sugars without developing dental decay. He further observed that with no other change in the diet, except in the addition of sucrose, caries almost invariably developed. These observations were so striking that this author coined the phrase, 'An unsweetened tooth cannot decay'.

"Most investigators have erroneously assumed that sugar was harmful, as it could easily be converted into acid. Primitives can eat corn, potatoes, cabbage, bananas, apples, beans, and other easily fermented carbohydrates and remain caries free, yet let them add small amounts of the *hard to ferment sugar* and their teeth undergo rapid destruction. Sucrose is primarily dangerous not as a source of acid, but by reason of its activating influence upon the oral streptococci. Before sugar is added to the diet, these organisms do not have sufficient fermenting power to produce enough acid from any of the carbohydrates to cause smooth surface dental caries. Sucrose specifically stimulates the fermenting ability of the oral streptococci and alters the floral enzyme mechanism to such an extent that after this material has been added to the

diet, the organisms can produce sufficient acid from any of the carbohydrates to cause dental caries."

It is important that I give as much as possible of the Beldings ideas, for their work is of the utmost significance in the consideration of human health. In some cases I will quote word for word and in others I will give you their thoughts in my own, more simplified words, translating the technical and medical terms.

"The saliva of dogs, cats, cows, mice, rats, and other animals, breast fed babies, and all others subsisting upon a primitive diet is not a high acid producing mechanism. Saliva samples obtained from these sources can be incubated with any carbohydrate and the resultant action is weakly acid or alkaline. In contrast to this, the saliva obtained from *any human* subsisting on a modern diet will, on incubation with the carbohydrates, rapidly produce sufficient acid to decalcify the teeth. This observed difference in the fermenting power of the saliva samples from these two groups, civilized and primitive, makes it apparent that they are not alike in their bacterial content. It is this difference in the fermenting power of the saliva which is generally induced by sucrose (sugar)."

This action is for all practical purposes exclusively initiated by certain bacteria in the mouth, the oral streptococci. Once the streptococci have been converted from low acid production to high acid production under the selectively stimulating action of industrial sugar, they are able to convert practically all carbohydrates, including sucrose (sugar), and perhaps protein, into sufficient acid to cause tooth destruction.

Cavities of the teeth, called dental caries, or more technically, *caries acuta*, are caused by specific, infectious, contagious, bacteria initiated by the action of the streptococci bacteria mentioned above.

Caries acuta obeys general bacteriological law in much the same manner as do the other infectious diseases, such as scarlet fever and diphtheria. Following the ingestion of the modern diet, these changes in the bacteria occur not only in the mouth but throughout the intestinal tract. It is for this reason that we have named the syndrome, which results from eating sucrose, *alimentary streptococciosis*. The manifestations of this disease are multiple and varied and its implications extend far beyond the ramifications of the oral cavity.

It is probably this activated streptococcus, as postulated by Ashoff, which causes appendicitis and lymphoid hyperplasia to be practically universal diseases in civilized communities. Modern man lives in a state of perpetual siege with pathogenic organisms! No wonder he is alleged to be delicate.

Sugar and Primitive People

This work of the Doctors Belding is of far-reaching implications. Why did not the American Indian get appendicitis, nor the Hunzas and hundreds of other primitive peoples? That there might be a connection between appendicitis and the taking of industrial sugars is a fact worthwhile of further study by the medical profession. I am sure it can easily be discovered that behind each appendectomy lies a violent liking for sweets. But, when the Beldings speak of lymphoid hyperplasia they are coming closer to cancer, for lymphoid hyperplasia means an abnormal multiplication of the cells of the lymph of the blood.

The Beldings state that ordinarily the streptococci bacteria in the digestive system are harmless, in fact helpful to the extent that they oppose the colonization of harmful bacteria, tending to convert them to an innocuous form. These organisms live in intimate biologic relationship with the mucous membranes, where they are present in enormous numbers. They are the most frequent bacteria found in the saliva of man or animal. They live in a state of uncertainty and under the influence of the environment they are constantly undergoing involuntary and evolutionary change. The chief factor determining the direction of their growth is diet. We may be what we eat, but it may be more apropos to say that we are what we feed our bacteria. Of all the foods consumed by man, sucrose (sugar) is the only one which alters the streptococci rapidly and significantly enough to induce variation.

The streptococcus of the infant, especially if it is breast fed, is low acid producing and it cannot break down the sugar molecule, but gradually, by changes in diet, the taking of sugar especially, special fermenters or enzymes are developed in the saliva which can readily break down sugar. The Beldings have discovered that after sugar has changed the streptococcus into an organism called *S. odontolyticus*, the latter begins to convert almost any food into sufficient acid to cause caries

(cavities in the teeth). This explains why primitives can eat large amounts of easily fermentable carbohydrates and yet remain caries free. Their saliva does not contain a high acid producing bacterial mechanism. In civilization the alteration in the bacteria of the mouth causes white breads and pastries to ferment and to serve as the chief source of acid for the leaching of the enamel of the teeth. (This is the end of the Beldings thoughts which I have simplified somewhat.)

In my opinion the work of the Beldings is of great importance in the prevention of cancer because it shows that by taking sugar there is a serious interference with the natural functioning of the digestive processes, by changing a beneficial bacteria to a harmful one. The whole body is dependent for its welfare on the performance of the stomach, which in delicate and subtle ways prepares the food distribution for the blood and the organs of the body. The efficient operation of each cell depends on the manner in which its food is broken down in the digestive tract. The slightest change may be a disturbing factor in preventing the cells from functioning efficiently.

In *Life and Health Magazine* for March, 1948, another effect of sugar and bacteria is given which is pertinent to our discussion. It states that the requirements for vitamins vary with the kind of carbohydrate used in the diet. In all studies where cane sugar was the carbohydrate given, the vitamin requirement was the highest. Sugars that are converted from starches and other natural sugars are the carbohydrates that give the most sparing effects upon the vitamins. The reason is this—many vitamins are manufactured in the intestinal tract, but to accomplish this a friendly bacterial condition must be present in the intestine for the growth of the bacteria which are responsible for the synthesis of the vitamins. But the proper bacteria cannot thrive without certain carbohydrate products, and evidently these products result from carbohydrates such as starch that break down and absorb slowly. White sugar is rushed out of the digestive system too fast for the bacteria to work on them.

Antiseptics Used In Sugar Making Process

I went to a sugar refinery a few months ago, to see the process of making sugar and to learn whether any harmful chemicals are used in it. I have often read that sulphuric acid

was used in its manufacture somewhere. I found only one place that I could question but it is a serious question. The sugar goes through the plant in the various parts of the process in liquid form and in one place it goes through filters made of blanketing material. Ever so often these blankets have to be cleaned and a disinfectant is used to kill disease or other organisms. A disinfectant, to kill bacteria, must be a poison, and even though the blankets are then washed out, I believe that some residue of the poison remains to get into the sugar. However slight this may be, it adds to other poisons used in factory processes with other foods so that the sum total, the accumulation of a varied daily intake of foods that are processed in factories, involves real danger. I found no evidence of sulphuric acid used as a bleach or for any other purpose, but that does not mean that it may not be used in refineries in other places.

Cheap Glucose

Many of the sweetened products such as sweets, soft drinks, cakes, pies, ice cream, canned fruit, etc., are sweetened by glucose because it is half the cost of cane sugar and it makes a clearer looking sweet. Glucose is made by applying sulphuric acid upon starch. As I have said before the State of Pennsylvania does not permit the use of sulphuric acid in the manufacture of glucose but other places do. Dr. Harvey Wiley, the first head of the U.S. Food and Drug Administration, did everything in his power to draw attention to the danger of using glucose, but all he received for his pains was a dismissal from the department. In 1912 Doctors Lukens and Dohan of the University of Pennsylvania discovered that mice fed on glucose became diabetic whereas the same amount of cane sugar did not cause it.

Primitive Races

Medical explorers have noted the wonderful health and teeth of savages who do not have access to sugar, but when they begin to consume the white man's sugar they become susceptible to cavities in the teeth, appendicitis, cancer, etc. Let me quote from the Belding paper above-mentioned:

"Human experience has shown that many races have subsisted upon a diet high in carbohydrates drawn from many sources yet have remained caries free. The native Hawaiians subsist upon a diet high in carbohydrates, yet they have excel-

lent teeth. The early Pacific Islanders, before they died off as a result of contact with civilization, secured a large part of their total caloric intake from carbohydrates, yet they had practically no decay. Likewise, it has been established that through a century the European colonists in Tristan da Cunha, and their descendants, subsisting on a high potato diet have remained almost caries free. In Tristan da Cunha, where until recently there was no bread or other cereal and the main food was milk, mutton, fish, eggs, and potatoes, there was no rheumatism or arthritis and the teeth were relatively free from caries. In recent years, well meaning people have been sending flour and sugar to the island and as might be expected, the first curse of civilized communities, dental caries, is increasing among their children. Incidentally, their physical status is much better than that of their European brethren and during the last hundred years there has been neither an operation for appendicitis nor a death from peritonitis."

There is a sad picture in the December, 1949, issue of the *National Geographic Magazine*, on page 754. It shows a woman missionary handing out sweets to forty-odd children in a primitive region of northern Australia. In the remainder of the article you see pictures of natives displaying wonderful teeth and you wonder what is going to happen to them under a diet of sweets and white flour. This is a poor form of Christianity. Missionaries should study the facts brought to light by medical explorers such as Dr. Weston A. Price and others which show that it would be best *not* to bring to the natives of these far-off places the devitalized white flours and sugars of civilization.

In my book *The Healthy Hunzas* it was demonstrated that this race of people who live in the northern part of India were one of the healthiest people in the world. They get no cancer and live long. They eat no white refined sugar. There is no question that their health is due to their marvellous proficiency in the application of the theory of soil fertility, using of course, no chemical fertilizers, but seeing to it that every bit of organic matter at their disposal is put back in the soil. They do not burn manure for fuel as is done by neighbouring tribes. Dr. John Clark of the Central Asiatic Research Foundation of Pittsburgh visited them and in a newspaper account of his observations he said, "What the Hunzas really need are

a few new agricultural methods and a couple of small home industries. They haven't any sugar for instance." I will go no further. Dr. Clark is a geologist but should study the organic method of farming and its use by the Hunzas before he advises the use of chemical fertilizers. However, I have been in correspondence with the ruler of Hunza who assured me that over his dead body would any chemical fertilizer ever be used on their soils.

Sugar and Energy

There is a popular fallacy that the consumption of white sugar will furnish energy. Here is a quotation from Dr. Michael J. Walsh, a nutritionist, which appeared in the April, 1964, issue of *Modern Nutrition*, which shows the contrary: "Acting on the false-to-fact identification that sugar is energy, people eat more and more sugar in the naive belief that they are going to get more and more energy. Instead of more and more they are likely to get less and less energy—if the more and more sugar is in the form of the 'concentrated, refined fermentable carbohydrates' listed above."

His list includes sugar out of the sugar bowl, sweetened breads, rolls, doughnuts, pastries, biscuits, pies, cake, sweetened alcoholic beverages, sweetened processed cereals, syrup from canned fruits, etc., etc., etc., all of which from Dr. Walsh's observations are the preferred foods of our youth.

The reason why this kind of sugar reduces the energy is, "that they are not likely to be accompanied by sufficient quantities of other factors (such as vitamin B), which are needed to ensure the completion of the intermediate stages of carbohydrate metabolism. For example, the diets containing excessive amounts of 'concentrated, refined, fermentable carbohydrates' mixtures are invariably deficient in vitamin B. Vitamin B is an essential part of the enzyme system which is responsible for completion of one of the stages of intermediate carbohydrate metabolism. If vitamin B is lacking, this stage is not completed, energy fails to be released, and a by-product called pyruvic acid accumulates in tissue cells. A consequence of failure to complete the energy transformation is fatigue—the universal characteristic of every sick person.

Sugar, a Habit

Sugar taking is a habit which can be developed, and once

the habit is controlled there is no longer any craving or need for it. Most of us are sugar drunkards. When a waiter saw me eating buckwheat cakes without syrup, he said if he could not use syrup on his wheat cakes and sugar on his oatmeal he would rather cut his throat. His taste buds need a little talking to. When I eat wheat cakes without syrup I enjoy the taste of wheat cakes, which is what I am after when I order wheat cakes. If you will even eliminate the butter, when ordering buckwheat cakes, you will get the delicate taste of the buckwheat. I would not think of smothering that taste with syrup.

The habit of eating sweet-things is an acquired one and if children were taught proper control over sugar they would never develop such an artificial habit. Even a young horse has to be taught to like sugar. Before I knew better, I used to offer sugar to young weanling colts and they would invariably spit it out. We would hold them and force it on them, thinking it was good for them.

I was in a sugar factory recently and visited the company cafeteria. The atmosphere in the whole factory is terribly saturated with sugar. When you enter for the first time you can feel it forcing itself down your throat. I watched one worker put six spoonfuls of sugar in his coffee. His system was so saturated with sugar that he required six teaspoonfuls to make a dent on his taste buds. When you learn to cut out sugar you become more the master of your will and then can more easily master other undesirable habits. By reducing the excitation of the taste buds you can more easily cut out the taking of salt. If you go at these dietary errors, one at a time, you will find it much easier. The other day at a banquet I did not turn down the cake that was put before me for dessert. It practically nauseated me upon eating it, for I am no longer used to such a concentrated sweet taste as the icing afforded.

Doctor's Opinion

Here is part of a letter I received recently from Dr. H. R. Lotz of Bristol, Connecticut:

"This I have known for twenty years that positive cancer sufferers in the final stages, and right up to the point of death, can live free of pain if they will live entirely on natural food and completely eliminate all sugar, which means just the *artificial sugar* and the complete abstinence of all products in

which sugar enters, such as bread, cake, etc.

"But I do not think this is because of any harmful ingredient in the sweet but rather that the excessive use causes a complete imbalance in tissue cell. Or exactly similar to what happens when an excess of nitrogen and lack of other nutrients are incorporated in a piece of garden."

In a book called *Truth About Sugar*, by H. V. Knaggs (1913), the author says:

"Brandt, an eminent German chemist, has shown that a six to ten per cent solution of cane sugar causes irritation, with the redness of the mucous lining of a dog's stomach."

Here is what the American Medical Association, through its journal *Hygeia*, thinks about sugar:

"One pound of sugar provides 1,800 calories and nothing else. It contributes none of the nutritionally important protein foods as whole grains, fruits and vegetables.

"The eating of white sugar, either cane or beet, in large amounts, may place a burden on the pancreas. The pancreas secretes a substance which is necessary to enable the body to use sugar as a fuel food. If the pancreas is impaired or injured, its ability to secrete insulin is also impaired and as a result the body loses its ability to burn sugar.

"There is also evidence that excessive consumption of sugar may weaken the protective power of the liver and thereby cause numerous so-called bilious symptoms. Brown sugar has the same effect as white sugar. Eating sugar in excessive amounts may make one feel dull and bilious because of these reasons."

In my own opinion—I would eliminate brown sugar as well as white and endeavour to get my sweets in a less concentrated form such as fruits, carrots, beets, etc.

Nature Hits Back

Here is an item from *Nature Hits Back*, by Macpherson Lawrie, M.D.:

"The increase in the consumption of sugar is the most outstanding dietetic perversion of the age. Apart from any other consideration, it upsets the whole balance of nutrition. Sugar is a fuel, and today we take into our system this purely fuel food in amounts sufficient to shatter every dietetic principle and law. Our digestive glands and organs may be adaptable, but it is impossible to believe that during the last

hundred years our physiological processes have so changed as to enable our bodies to deal normally with an excess of fuel so staggering. Especially is the amount consumed in tea and other fluids remarkable. Six cups of tea each day, each containing two lumps of sugar will alone account for over 40 pounds in one year. Further in connection with its use in fluid, we must remember that, with sugar so consumed, salivary digestion is lacking. Saliva is an agent of supreme importance in the digestion of carbohydrate food, and a flow of saliva is normally aroused by mastication. By swallowing, in fluid form, such vast amounts of sugar, the digestive action of saliva is not enlisted and as a result we must throw upon other digestive glands an abnormal strain which may have far-reaching and serious effects."

Let me quote a short item from an article entitled *Case of Dental Caries v. The Sugar Interests*, which appeared in the Southern California State Dental Assoc. Journal (Nov., 1949):

"Here we come up against a great obstacle to the solution of our problem, and that is the mis-education of our people by the companies who sell white flour, sweets, pastries, soft drinks, especially the sweetened varieties which in addition to the sugar frequently contain a great quantity of phosphoric acid, which helps to destroy our children's teeth."

The Truth About Sugar

I would like to present a most important excerpt from the book *Truth About Sugar*, by H. V. Knaggs, M.D., mentioned above:

"Acidity, or sour stomach, is a common symptom among those who take cane sugars or sweetmeats to excess. The acids formed as a result of the decomposition of the sugars in the presence of meat and other proteins, create a form of acid intoxication, or self-poisoning, which manifests itself in various types of catarrh or rheumatism.

"The chief acid produced in this way is that known as oxalic acid. Dr. Helen Baldwin has proved by a number of experiments that animals fed on meat and sugar, both of which are free from oxalic acid, until a state of extreme fermentation ensued, developed marked oxalic acid poisoning. I have repeatedly seen this condition myself among patients who are suffering from dilated or catarrhal stomachs, due to the abuse of milk and sugar foods, and when the gastric con-

tents were in the same condition as that of the animals cited. This oxalic acid when it reaches the blood converts the soluble lime salts into an insoluble oxalate of lime, and thus induces the condition of the system known as decalcification or lime starvation.

"Since lime builds the teeth and bones, and gives stability to the nerves and tone to the muscles, the consequences must necessarily be serious.

"The abuse of sugar, owing to this action of its acid by-products upon the lime in the blood, is the usual cause among the young of rickets and decay of the teeth, of adenoid nasal growth and inflamed tonsils. . . ."

Athletes and Sugar

A man who was once an athlete and is now a minister, Rev. Gil Dodds, who I understand held the record for the fastest indoor mile, recently addressed the children at the school my young daughter attends, and cautioned them against the over-consumption of sweets. He told them that when he was in training, he severely eliminated sugar, because he found that it put his body out of condition. He said he took extremely little sugar at other times. This could be an answer also to those who believe that sugar is needed for energy.

Conclusion

It is not maintained that the eating of sugar is a direct cause of cancer, but it may be a contributing cause to it. There probably is no *one* cause of cancer. There are too many factors involved. For example, not everyone who smokes a pipe gets cancer of the lip. Perhaps it gets only persons who do not have a healthy condition of their body. Thus a person who smokes a pipe, and eats excessive amounts of sugar and salt, may be more easily liable to contract cancer of the lip. Perhaps if one smokes a pipe and eats sugar and salt, but has a 100 per cent diet of organically produced food to protect the body, he may not get cancer of the lip.

Sufficient authorities have been produced to show that the taking of sugar is not a healthy thing for the body, and I believe it is common sense to state that a strong, healthy body can resist that paralysis of its functions which we call cancer. Therefore I unhesitatingly recommend that every reader reduce drastically, or eliminate entirely the use of industrial sugar.

Sugar In Primitive Diets

**Where nations have not yet learned
to eat sugar national health is better**

A HEADLINE from the *Los Angeles Examiner*, June 11, 1953, caught our eye the other day: *Indian Survey Hints Diet May Be Cancer Study Link*. The article went on to say: "Cancer may be linked to the food you eat, particularly sweet food that produces high blood sugar levels, a doctor who made a survey of phenomenally low cancer rates among Navajo Indians reported yesterday.

"Dr. C. G. Salsbury, director of the Arizona State Health Department and for 23 years Superintendent of the Indian Hospital at Ganado, Arizona, told the Western Branch of the American Health Association at the Biltmore:

"During my recent year on the Navajo reservation, I was struck by the apparently low incidence of cancer.

"In a period of 23 years with nearly 35,000 admissions to the hospital, only 66 malignancies of all types were observed and nothing even faintly resembling a cancer of the breast in a Navajo woman was seen during that period.

"Some outstanding authorities have suggested that diet may have some relation to the low incidence. Navajo blood sugar levels consistently run about 25 per cent below that of white people."

Dr. Page, in his book, *Degeneration and Regeneration*, has more to say about primitive diets and their effect on health.

"We have shown disease conditions reversed by improved nutrition and we have discussed the harmful elements in the food of civilized people but to make the relationship of health and diet more clear, let us consider primitive tribes.

"In his book, *Uttermost Part of the Earth*, Mr. Bridges, the foremost authority on the Fuegian Indians, states that in the early days in Patagonia he never heard of an Indian having

a toothache. He believed that they were unacquainted with the malady. Their health in other respects was equally as good. But with the influx of civilization they lost their teeth and their health as a toll to the white man's food and the white man's diseases. Now there are less than one hundred and fifty pure-blooded Indians and possibly a slightly larger number of half-breeds. Yet within the memory of one man the Indian population has been reduced to this figure from an estimated nine thousand persons.

"An interesting sidelight is that at the present time the Indian and white populations have very nearly reversed in numbers. The white population in Patagonia was 9,560 at the last census.

Natural Foods Among Primitive Peoples

"Dr. Weston Price has made a most notable study of the diets of primitive peoples existing in many parts of the world today. His book, *Nutrition and Physical Degeneration* (available from the Lee Foundation, 2023 W. Wisconsin Ave., Milwaukee, Wisc.) is a landmark in the advancement of applied nutrition. Where he found primitives uninfluenced by the modern diet, the incidence of dental decay and other degenerative diseases was markedly low as compared with the figures tabulated among so-called civilized peoples. In the secluded areas inhabited by primitive tribes, the diet was found to consist chiefly of whole grains, animal foods and dairy products. The most desired parts of the animals were the liver, the heart, kidneys and blood. These parts by chemical analysis were found to contain more vitamins and minerals than the muscle parts which civilized peoples consider particularly choice."

"When white flour and sugar became part of the daily food intake, for these people, dental decay, tuberculosis, etc., became rampant. Never having been exposed to these ills, no immunity to them had been established. Therefore, once their systems had become weakened through an inadequate and rapidly changing diet, they were easy victims to bacterial invasion. Even in two or three generations these people could be reduced to one-tenth their former number merely through the breakdown of their bodily chemical balance due to inadequate diet. The rate of deterioration of these hitherto immune people seems to be directly in proportion to the amount of harmful dietary intake."

"Sugar and white flour were introduced to these people simultaneously and in quantities. Within one generation the effects were devastating. Among us the more gradual acceptance of these items of diet results in a less rapid though still too rapid degeneration. Island tribes in some localities were found existing in health upon an unvaried diet of fish, whole grains and some wild plant life. Thus a few natural foods were found to be more productive of health than the refined, delectably concocted dishes of modern man. The percentage of dental decay among these people was negligible so long as they remained on their native diet. A recognition of the value of fish food was widespread. Even high in the Andes Mountains natives were found carrying small pouches at their waists in which were dried fish eggs and seaweed, products which could be obtained only by making long journeys to the sea.

"Among primitive people much greater thought is given to the diet of both men and women previous to conception than is the custom in modern civilization. Long trips are made for special foods, crabs, the ashes of water hyacinths and certain cereals, because tradition has taught that these foods have peculiar dietary values that influence the physical and mental well-being of future progeny. Doctor Price had laboratory examinations made of these special foods and found that such food customs were scientifically sound. Unusual amounts of calcium, iodine or carotene, which effect vitamin use within the body, were found to characterize these foods.

"Where modern diet was accepted by the natives, structural changes of the bony formation of the body were observable within even one generation. Narrowed dental arches affected respiration and mastication aiding in the onslaught of disease. Pelvic formations in women were altered and affected the bearing of children. In brief, general deterioration of the body was observed with an inevitable effect upon the mental and moral well-being of these people.

"That this process could be reversed by a return to the native diets was evidenced among the people of one of the Pacific Islands. Temporarily the high price of copra permitted the exchange of this for large quantities of white flour and sugar. The children of the island rapidly developed a high rate of dental decay although previously only a small fraction of the people had been so affected. The day came when the

value of copra dropped so low that it was unprofitable for the traders to stop. The old native diet was reinstated and shortly dental decay had stopped. Chemical balance of the body had been re-established and bacteria were no longer able to penetrate the tooth structures.

"Instead of seeking economic profit through exploitation of these people, it might repay us to adopt their customs regulating health and the production of mentally and physically excellent children. By correlating the findings among all these peoples and using them in our own civilization we should be able not only to equal their standards of health but to exceed them."

Editor Rodale's visit to Dr. Page in Florida brought the following comments: "One thing that impressed me about Dr. Page's work should be of interest to women who wish to be beautiful. He noticed that in both men and women as they eliminated sugar, they not only lost weight if they were overweight to start with, but that the lines of their faces took on a much more handsome appearance. He said that it was most uncanny what the mere cutting out of sugar did to the features of the face. It also helped to accomplish miracles in curing many terribly sick people. While I was not sick, on his advice I have not been taking sugar now for about six years. I have found that now I can get better taste from other foods. The constant eating of sugar evidently warped the functions of my taste buds. Today we are a nation of sugar-drunkards, eating over 100 pounds of sugar per year per capita. We have perverted our natural tastes."

Glucose—A Synthetic Food

Danger lies in many prepared and processed foods from this synthetic adulterant

FROM the supermarket shelves, rows of glistening, jewel-coloured jellies and jams beckon invitingly. Brightly coloured sweets, newly baked cakes, sparkling fruit juices shine in every aisle. Some of these delicacies contain natural food products in small quantities. But the foods we have mentioned, as well as ketchup, cocktail sauces, canned vegetables and many more, contain a substance that, it seems to us, is more dangerous to health than white sugar. This is commercial glucose, or corn syrup, made by treating corn starch with sulphuric or hydrochloric acid. The resulting syrup is then neutralized with sodium carbonate and decolourized with carbon or bone black.

In past issues of *Prevention* we have presented the evidence against glucose. According to Royal Lee, D.D.S., President of the Lee Foundation for Nutritional Research, commercial glucose is the only known sugar to cause diabetes when it is fed to test animals. He gives as his reference for this fact Dohan and Yukens, *Endocrinology*, Volume 42, page 244. Furthermore, says Dr. Lee, Dr. Joslin of Boston, our leading diabetic authority, has said that at the present trend of increase in diabetes, in another fifty years the American people will *all* be diabetic. How much of the responsibility for this frightening prediction can be laid at the door of glucose or corn syrup?

According to Daniel T. Quigley, M.D., of Omaha, synthetic glucose must be suspected as being a cause of cancer, for he has found that it is impossible to treat successfully some types of cancer until all traces of glucose have been eliminated from his patient's diet. Dr. Quigley made this statement in the *American Journal of Roentgenology and Radium Therapy*, Volume 34, No. 1, page 83. Since the preparation

and processing of glucose actually make it a synthetic food there seems to be ample reason why it should produce all kinds of serious disorders, for, let the chemists say what they like, our bodies simply are not adapted to synthetic foods. As Dr. Lee says, when you feed your body synthetic foods, your cells adapt more appropriate forms for making use of the new situation. "What better definition can you frame for cancer? Feed your cells rubbish and they will lose their identity and revert into forms that can better live upon the rubbish."

Dr. Lee tells us also that glucose blocks the assimilation of calcium. As *Prevention* readers well know calcium is the single most important element necessary to strengthen us against many different kinds of disease. Is it possible that our tremendous national deficit in body calcium is due to the amounts of glucose we have been eating over the years? Look at your neighbour's shopping list and you will be horrified to see the quantities of processed, canned, preserved, pickled and prepared foods she buys, even when fresh foods are available and cheap!

Finally, Dr. Lee tells us that glucose destroys amino acids in the body. Amino acids are forms of protein. Protein is our most important category of food for health. The fruits, grains and vegetables we buy are declining each year in protein content, due to chemical fertilizer. Now, in addition, the prepared food we eat destroys more protein in our bodies. Says Dr. Lee, "Lack of lysine (an amino acid) causes fatigability and nervousness. Lack of methionine, another amino acid, brings about toxic symptoms, liver disease and obesity. Yet glucose held at blood heat in the body along with protein, destroys 90 per cent of the lysine and 50 per cent of the methionine in this protein within 30 days."

We do not know how to advise you of the best methods for avoiding glucose, except to counsel you quite simply: No matter how rushed you are, no matter how meagre the food budget may be, *don't buy foods that have been processed in any way!* You have no way of knowing which foods contain glucose and which do not. The addition of glucose may not be stated on the label. Canned fruits, canned vegetables, canned juices, preserves, jams, jellies, sweetened condensed milk, ketchup, sweets, syrups, sauces, ice creams, bakery products, cereals—all these and many other kinds of food may

contain glucose. They will be appealing because they will be cheap. That is the reason why glucose is used—so that the food can be sold more cheaply. In more expensive brands of food perhaps less glucose is used.

Practically, how can you avoid glucose? Use fresh fruits and vegetables *always* rather than canned ones. When fresh foods are not available, buy frozen ones which are much less likely to contain synthetic material like glucose. For mayonnaise, ketchup, chilli sauce and so forth, we advise making your own at home, so that you will know what the ingredients are. We don't advise using condensed milk for any purpose and we believe you should eat only unprocessed whole grain cereals.

Prevention readers will undoubtedly think of many foods we have forgotten to list that probably contain glucose. Look with a suspicious eye on all commercially prepared foods. Before you pull out that attractive can or bottle from the grocery shelf, remember once again all the evidence against glucose. Do you want your family to eat this synthetic food?

What About Saccharin and Sucaryl?

**Research indicates that any and
all sugar substitutes are dangerous**

AS readers of past issues of *Prevention* will know without being reminded, we say a positive and unequivocal "no" to any and all sugar substitutes—that is, the various chemicals you can buy labelled saccharin, sucaryl, dulcin, sodium cyclamate and so forth. All these are many times sweeter than sugar. A small tablet of one of these chemicals dropped into your coffee or dissolved in your pudding gives you no calories, hence no energy, and absolutely nothing else, either, except a sweet taste.

They are all products made from coal tar. Applying to them our two rules for what we should and should not eat, we discover that these chemicals give us nothing that is needed nutritionally and do much that is harmful. So we cannot possibly recommend that you use them even for a short period of time to tide you over the uncomfortable few days when you are learning to get along without sugar.

We have done considerable research on saccharin which we will review here rather than going into an individual discussion on each of the sweeteners. New sweeteners are being discovered all the time, out of the busy test tubes of our chemists in a nation where the largest portion of the population suffers from overweight. These sweeteners are announced with great fanfare as they appear. We are told we can eat them with safety while we are reducing; we can give them to children and sick people; we can feed them to diabetics. What we have to say about saccharin applies with equal force to all these synthetic sweeteners. *Leave them alone if you would be healthy.*

Since its discovery about 70 years ago, saccharin has been the subject of endless investigation, because, apparently, most researchers have had serious doubts as to its harmlessness in the human body. In our large file on saccharin we cannot find a single article that does not caution that we should use saccharin "with care". Its use should not be abused, they say. To us this means only one thing. If it were harmless we could eat all of it that we happen to want and suffer no ill consequences. In Europe country after country has forbidden its use in food and drink. In 1912 the American Food and Drug Administration forbade its use in foods because, they said, it would constitute an adulteration. People might think they were getting sugar which, as we know, has a certain value in calories which saccharin does not.

Early in our medical history physicians advised the use of saccharin because it has no food value, which seems to us just as idiotic as if a coal dealer should advise us to fill up our winter furnace with steel because it will not burn! Why in the world should we take anything into our bodies *because* it has no food value? And what is our body supposed to do with something that scientists agree cannot possibly be called food?

Here is a quote from our earlier article on saccharin: "In the *British Medical Journal* of October 9, 1915, H. C. Ross, M.D., whose address given at the end of the article is 'Lister Institute' tells us that 'recent research at the McFadden Laboratory at the Lister Institute has shown that saccharin is a powerful auxetic, like several other constituents and derivatives of coal tar; and there is now strong evidence that it is these auxetics in tar and pitch that give rise to the predisposition to the cancer known as pitch and sweepers' cancer. The next reference we find to it appears in Dr. B. M. Gupta's article published twenty years later in the *Indian Medical Gazette* (September, 1935): 'Although this statement (of Ross') does not seem to have been contradicted in any medical journal it appears from a private communication that the suggestion that saccharin may predispose to cancer is not accepted by the present authorities of the Lister Institute.' Who lost the evidence in a file somewhere? What became of the records of the experiment proving the association of saccharin and cancer? Is it possible that they have just been overlooked all these years?"

Effect of Saccharin on Plants and One-Celled Animals

We discovered several experiments revealing the deadly effect of saccharin on plants and one-celled animals. E. Verschaffelt, M.D., writing in the Dutch Medical Journal, *Pharmaceutisch Weekblad*, Volume LIX, 1915, describes an experiment in which he soaked dry seed peas in four different solutions: plain water, salt, sugar and saccharin. Two days later 94 per cent of the peas treated with water had sprouted; 87 per cent of the peas treated with sugar had sprouted; 44 per cent of those soaked in salt water germinated and none of the peas soaked in saccharin solution sprouted. Using a saccharin solution only half as strong as the salt solution, Dr. Verschaffelt once again found that the salt-treated peas germinated twice as fast as those soaked in saccharin. His conclusions are that saccharin is a protoplasmic poison. That is, regardless of how long the process may take, saccharin eventually poisons protoplasm, which is nothing more or less than the substance of which plants and animals are made.

Dr. W. A. Uglow, M.D., tested saccharin on one-celled animals and his experiments are reported in the German

medical magazine, *Archiv fur Hygiene*, Volume XCII, 1924 Testing saccharin solutions and phenol (carbolic acid) solutions of varying strength, Dr. Uglow found that saccharin is 12 times as deadly to bacteria as carbolic acid which is another coal tar derivative and a deadly poison. In a further test he found that a solution of one part saccharin to 500 parts of distilled water almost corresponds in its toxicity to a .05 solution of sulphuric acid—another violent poison.

In a solution of one part of saccharin to 400 parts of water Dr. Uglow placed some cyclops quadricornis (a microscopic one-celled animal). They died within 40 minutes. In a solution of one to 800 parts of water, they died within an hour and so on until he found that it took a solution of one part of saccharin to 8,000 parts of water just 24 hours to kill all the cyclops. Incidentally one part of saccharin to 10,000 parts of water is approximately the solution we get when we slip a saccharin tablet into a cup of tea or coffee.

A one-celled animal is made up of one tiny cell of protoplasm—the same protoplasm that makes up all the many tiny cells of your body. Cancer research deals largely with what goes on in cells. Certain coal tar products are known to produce cancer through their effects on the cells of the body. Saccharin is a coal tar product. Saccharin means certain death to a one-celled animal. Do you need further proof of the harmfulness of saccharin and all other synthetic sweeteners?

Only one word more on saccharin. We present on many of these pages testimony from healthy people who are getting along happily and serenely without ever using sugar or any other kind of sweetener except fruits and vegetables. We have also shown that saccharin is a poison. What possible excuse can there be to continue to prepare food for diabetics (desperately sick people) using saccharin? Why do we continue to propagate the fable that we simply can't get along without a sweet taste in our mouths at every meal and most of the time between meals? In many parts of the world whole nations have never tasted sugar or sugar substitutes. In our own country thousands of people have not eaten sugar or sugar substitutes for years. Why must we continue to feed the poisonous sweet-tasting sugar substitutes to sick people?

Getting Along Healthfully Without Sugar

Some comments from "Prevention" readers who have decided to do without sugar and have found it easy and healthful

SOME time ago we asked *Prevention* readers to share with us their experiences in getting along without sugar. The response was so overwhelming that we published an article including as many of the letters as we could. And long after the article had gone to the printer, letters continued to pour in! Here are some more of them—joyous testimonials from folks freed of a lifelong addiction:

T. A. Lamb writes us: "We have neither bought nor used any refined sugar since the days of rationing and now we have a family of six boys. We use no sweets, commercial ice cream or other foods to which we know that refined sugar has been added. When friends send sweets to the boys at holiday time we give them a 6d. each to buy other toys and give the sweets to the dog. Incidentally, the dog has more health sense than most people, for he just licks it a little and leaves it.

"As a result, the boys have had no sign of tooth decay or pain, but pass from baby teeth to second teeth as the trees exchange their old leaves for the new. Also we are almost free from colds the year round. Of course we think there are other factors too, such as raw whole milk, fruit and fruit juices, plenty of vegetables and especially potatoes baked in the jackets. Also, we use no white flour, flesh or flesh products except a weekly meal of fish or seafood, no salt except vegetable salt and of course no tea or coffee.

"Now to offset this loss (?) of sugar we use plenty of natural raw honey on our cereals with whole milk, avoiding

those cereals to which sugar has been added. We also keep a box of raisins of the unsulphured variety open before the boys to which they can help themselves at all times. This or other raw fruit is all they ever eat between meals. Occasionally, we make ice cream or other sweets, always with honey as the medium of sweetness."

Mrs. John Lienhard writes: "I buy a sixty pound can of honey from an organic farm near us. I make my own bread from freshly ground whole wheat flour. I never make cakes or pies or sweet desserts. We use fresh fruits and vegetables or frozen fruits in winter. . . . Eliminating all sugars and most starches from our diet we have no trouble whatsoever about overweight. . . . We get most of our proteins from organically-raised grains, cereals, eggs and so forth. I serve liver once a week and a serving of beet if I can afford it. . . . Our doctor is much interested in our diet for we are all in the best of health—high blood counts, good clean, clear, firm skin, radiant health. Amazing, says the doctor. Yet we are on a salt-free, sugarless diet, starch-free as we can make it—a minimum of meat. We try to eat living food, not dead food and we buy direct from organic growers."

Homemade Ice Cream Without Sugar

Here is comforting information from Mrs. Alice M. Green: "Having a terribly sweet tooth, it was hard for me to give up sweets and desserts. We used raw sugar in place of white for some time, also honey, but gradually used less and less. (Editor's note: As we say elsewhere in this booklet, the craving for sweets soon disappears on a good diet.) At present we use no sugar and little honey in any food and seldom give it a thought. We eat dried fruit such as dates, raisins, figs, etc., to satisfy our desire for desserts.

"In hot weather we often crave ice cream and we worked out two recipes that we enjoy ever so much. One is for pine-apple ice cream. We open a can of unsweetened pineapple juice and add about the same amount of rich goat's milk (cow's milk will do), pour into a glass baking dish and put into the freezing compartment. Several times during the day we stir it thoroughly. It makes a most refreshing and wholesome dessert. It is so simply and quickly made that even as busy as we are we can take a few minutes to prepare it. The

other recipe is date ice cream. I pit from 12 to 20 dates, depending on the size and how sweet you want your ice cream. These I liquefy in the blender with top goat's milk. When it is completely liquefied, I pour it into the glass dish and it is ready for the freezing compartment. This is sweeter than the pineapple and is indeed delicious."

The following wonderful letter came in with no name or address, but we are certain the writer will not mind our sharing it with you: "We thought we were using much less sugar and sweets than most people, but we have always had our share of allergies, colds and sickness. Our doctor is very much for preventive medicine if he can get his patients to try it. When I asked him how to prevent having colds he said 'leave sweets alone'. For over a year I left out all sweets, only occasionally using honey in pies or desserts. I had better health than I had had for years. Still had an occasional cold, but less severe. . . . When I make bread, I save a loaf and roll out about one-fourth inch thick. I spread it generously with apple sauce, raisins and nuts. Then it is rolled up and cut as in cinnamon rolls. These are sprinkled generously with finely ground coconut and baked after they rise. We sprinkle coconut on our bread pudding or use rice and raisins for a festive appearance and brown in a warm oven. We have a rule in our family that we do not eat between meals, thus eliminating many of the knick-knacks that most children eat."

Sugar-Craving Like Alcoholism

Tom Straub says: "Prior to my breakdown I was a heavy sugar consumer. Lots of sugar in my coffee, sugar in cereals, rich cakes. As my health improved I suddenly noticed that I did not want sugar. I did notice, however, for many months, under conditions of fatigue, I would find myself reaching for the sugar bowl, not as a conditioned reflex, but from a desire for the sugar. I am inclined to think the same applies to the so-called alcoholics, because I have noticed among my friends that they are more inclined to drink under conditions of what might be called nervous or emotional fatigue.

"I do not use any sugar substitutes, but rely on my system metabolizing blood sugar from my day-to-day food. I have toyed with blackstrap molasses and honey but did not notice any perceptible improvement. I feel that sugar consumption

and alcoholic consumption are closely related to fatigue of the endocrine glands, and the proper way to kill the desire for sugar is to eat strong wholesome foods and keep on eating them until the body improves to where the glands can metabolize the blood sugars from the various carbohydrates and fat reserves."

From Mrs. L. E. O'Keefe comes this refreshing note: "It is all of 25 years since we became convinced that our family would do better without most of the white-sugar white-flour products. Our first move was to eliminate sweets and bakery products; also commercially-made ice cream. We found the use of honey the most satisfactory. I learned to can all our fruit unsweetened and then when we open it we add liquid honey and sometimes cream. We even deep-freeze some of our fully ripe fruits without added sweetening and for a change in the way of serving we often run a package of frozen fruit through the food chopper, then add honey, just drizzle it over the fruit ice. This makes a good evening dessert for hot days. In our immediate family we do not use any white sugar at all, but do keep it for the pleasure (?) of our guests, though quite often we find our guests like to eat as we do."

An End To Sinus Trouble

H. C. Edinborough writes: "We never took sugar into account until my dentist lent me Dr. Weston Price's book *Nutrition and Physical Degeneration*, available from The American Academy of Applied Nutrition, 6238 Wilshire Blvd., Los Angeles 48, California.

"It really opened our eyes to the relationship of foods and health. But what really changed our eating habits was your stories about sugar in *Organic Gardening and Prevention*.

"My wife and boy—especially my wife—have suffered from sinus trouble for years. Her sinuses had grown shut and it took a number of operations to open them up. But in spite of all kinds of treatments there was still some infection, congestion and pain. She noticed that milk and cheese made the trouble worse, so dairy products were dropped. Little did we realize that the combination of sugar and milk was causing the trouble. When sugar was completely removed from the diet, there was no trouble at all with dairy products.

"All was well up to this point, but now, how to wean our

sweet tooth! (It is remarkable how the two words, 'sweet' and 'tooth' got put together). . . . I had little trouble cutting out sweets but not so with my wife. She craved white sugar. As long as she ate at home she planned her meals and avoided granulated sugar and sweetened with natural sugar. She got along quite well until she would eat à cup cake, pie or something at a party, then she would come home and walk the floor, or just give in and go on a sugar binge. (Editor's note: We repeat, sugar is a drug.) She realized for the first time that she had been drunk on sugar for years and was reminded of the alcoholics who can't stay away from the stuff once they get a taste of it. So from then on it was total abstinence for her. She can tell by the reaction in her system and her cravings when she has used anything but natural sugars in her diet.

"I must add that her health is greatly improved. Besides dropping white sugar and bleached flour from our diets, we eat our own organically-grown vegetables and use bone meal, wheat germ and brewer's yeast. (Editor's note: Another reason why the Edinboroughs can get along without sugar easily now—their bodies are getting enough minerals and vitamins.) We have learned many of these good things from the pages of *Organic Gardening* and *Prevention*. Your magazines have helped point the way to continued good health. We always pass their message on to others."

Fedor Mausolff is a 17-year-old dancer. How often have you heard that sugar is an absolute necessity for any kind of strenuous exercise? But listen: "How do I get along without sugar? I still (after four years) find sugar tempting and good tasting. I am a tumbler and do ballet as a hobby. After a workout I have found it bad to take anything sweet. It makes my muscles become sore and lowers my endurance, I think. If I take any before a workout then I feel weak and discouraged. Also I do not sweat as easily as I do when no sugar is taken."

Mrs. A. C. Brookey uses honey and brown sugar. She tells us: "I use honey in hot tea and really like it better. When the problem of iced tea came up (which we use a lot during hot weather), I sweeten it while it is hot. This is delicious and makes it more convenient when serving. (Editor's note: A sprig of fresh mint cheers up a glass of iced tea wonderfully, too!)"

Mrs. S. N. Smith cans fruits in their own juices without water, or sugar. She bakes apples stuffed with a date, fig, or some raisins. "I thought I could never eat pumpkin without sugar," she says, "but found if you mix some raisins or figs or dates with the pumpkin it is very good. Cooked breakfast foods need no sugar if a few of these dried fruits are added. Use a little honey mixed with water, diluted peanut butter, and lemon juice for a good mayonnaise. Sweet potatoes need no sugar—try them as they are. (Editor's note: This comment shows how different food habits grow up with you. We had never heard of using sugar with sweet potatoes until we read Mrs. Smith's letter. We always eat them baked, whole, with butter.) When I am where sweets are served I sometimes eat a small amount if I feel it is necessary. I put treat sweets in my purse when no one notices!"

A Cure For Stomach Ailments

A lady who asks to remain anonymous, says: "I want you to know that by eliminating from my diet white flour, white sugar and all foods containing either of these, I have been cured of a stomach ailment which had made my life miserable for many long years. More than one good doctor treated me and for a short time I would be better, but the trouble always returned. It was from reading your *Prevention* articles I learnt of the evils of these foods and my permanent recovery followed. I cannot tell you how thankful I am to you."

Mrs. D. W. Hopwood writes: "I use a lot of herb teas—strawberry, red clover, shave grass and camomile. In these I put honey—not just any honey but a good grade of natural honey from the health food store. . . . Another product that is not well known but a wonderful food, as well as sweet, is carob meal or St. John's bread in flour form."

If you're a sugar-eater and can't face the thought of doing without it, don't these letters give you courage and hope? It's not so hard, really, to throw the poisonous stuff out of your life entirely, and it needn't ruin your social life or get you labelled as a "crank" if you do as Mrs. Smith does and "put the offered sweets in your purse", or do as Mrs. Atkins does, and "nibble at the lemon sponge!"

Life Without Sugar Has Its Rewards

Some Hints on Sugarless Diets

IN our research on sugar we've come across some suggestions that may make your new Life-Without-Sugar easier. If you must stay with friends, have something like fruit juice, milk or tea. The icy soft drink dispenser is out of bounds for you. If you are on a trip, carry your own drinks in a thermos. If you go to a picnic, take along your own drinks, hot or cold. When refreshment time comes after the meeting, the bridge game or the television programme, get used to standing around with a cup and a plate in your hand and talking as entertainingly as you know how. Nine chances out of ten no one will notice that you've had nothing to eat but some peanuts. If the evening's activity has whetted your appetite unbearably, wait until you get home and carve up a slice of cold meat from the refrigerator, eat some fruit, a handful of nuts or raisins or a cup of hot bouillon if the weather is cold.

One difficulty with sweets these days is that they're so easily accessible—on every street a sweetshop invites you. So get used to having your own sweet substitutes handy too. A big bowl of fresh washed fruit in the refrigerator or on the living room table is just as handy as any ice cream stall. Make certain that you always have on hand dried fruits (if you like them), nuts and sunflower seeds. You'll be surprised at how pleased your guests will be when you offer them sunflower seeds rather than the usual after-dinner mints or chocolates. Popcorn and raw apples are splendid refreshment for a party, as one of our readers pointed out to us.

If you are "tapering off" on sugar you may find carob flour the answer to your problems. As has already been stressed in *Prevention*, this is a nutritious food, made from the pods of the honey locust tree. A sweet powder, it tastes a lot

like chocolate and can be used in any recipe that calls for chocolate or sugar. Since it is a natural food you can use it safely. It's a big help if your children are complaining about doing without sugar, for you can make chocolatey drinks from it. Popcorn is an exciting treat for children and shelling nuts to eat can be as much fun as making fudge. Sunflower seeds are a novelty. If your youngsters are the first in the neighbourhood to have any of this exotic new food to chew on, the added prestige will partly make up for the loss of lollipops and cream sodas.

Visit your local library and get familiar with the cook-book shelf. You'll find all kinds of suggestions for new and different foods to take your family's mind off the missing chocolate cake and cherry pie. We recommend as the best cookbook we know (even though we do not agree completely with everything in it) *Let's Cook it Right* by Adelle Davis, a talented nutritionist whose aim is economical, tasty and nutritious meals. Your local book shop or library can order it for you.

Get used to cooking with herbs. Here is a whole new field of taste thrills you may not have investigated. Perhaps you will have to learn to enjoy the flavours of herbs. If at all possible have an herb garden of your own, even if it is only a couple of plants in one corner of the lawn. Your own fresh herbs will be much superior to the ones you buy at the shop. Keep parsley and chives growing in a flower pot or a window box during winter.

Finally, learn to use salads—big hearty salads made of greens—to fill up on at meals. If you serve your salad first and then the rest of the dinner, you'll find that often you simply don't have room for dessert. If it is at all possible, your family should eat at least one large salad of fresh greens every day.

We receive many letters from readers asking about what kind of sugar to use. So far as we are concerned, the answer is "none". Pure brown sugar is not quite so harmful as white sugar and raw sugar is better for you than brown. But we still say, if you would be healthy, omit all sugar and just get accustomed to doing without it. Blackstrap molasses, honey and real maple syrup in moderation are sweeteners of which we approve.

FOR TRUE KNOWLEDGE OF HEALTH SCIENCE DON'T MISS THESE BOOKS.

**Available at Daulat Ram Nature Cure Centre, 16/849 Joshi Road,
Karol Bag, New Delhi - 110 005**

- 1. SWADISHT PRAKRITIK VYANJAN, By Dr. N.K. Sharma N.D. and Dr. Savita Sharma N.D.** 15.00
Authors are Health Science and Cancer experts. A revolutionary couple propagating the Natural Healing Art. The book has distinctive features and is 1st of its kind ever published in India so far. It is a practical guide for the adaptation of Natural Food in its natural form as gifted by God without subjecting the same to heat or any kind of processing. Consumption of natural food has been fully established by the authors as the panacea for all human ills. The book contains more than 200 recipes for the preparation of most delicious dishes with natural ingredients without cooking such as salads of in-numerous varieties sweets, cakes, chutneys, nut milks cream sauces etc. 80 pages of the book are devoted to all aspects of health and disease including food combinations without which the best food taken turns into poison resulting in mal-nutrition and toxicity. The book is a complete treatise on Health science and worth keeping for every household. The guidelines given in the book, in the most convincing manner, if strictly followed will create a health revolution in the country in the shortest time.
- 2. FOOD FOR HEATH by Yogscharya Moolraj Anand (E)** Rs. 2.00
A very inspiring book advocating the consumption of natural food in its natural form. The guidelines given in the book are the results of the personal experience of the author who is running in 87th year and enjoying a fairly good health. In the few pages there is sufficient material which forcefully drives the reader into action. The book is in circulation for the last 20 years and is instrumental in changing the lives of many.
- 3. HEALTH CRISIS GRIPS THE NATION-Analysis and solution by Yogacharya Moolraj Anand (E)** Rs. 4.00
The author analysis the present most horrible and deteriorating health condition of the individuals comprising the nation and suggests ways and means by which a health revolution can be brought about in the shortest time and without much expense.
- 4. SWASTHYA VIGYAN (H) by Dr. N.K. Sharma N.D.** Rs. 1.00
This is a small pamphlet illustrating the vital principles of Natural Hygiene that governs the human organism.
- 5. COMMONSENCE RESTORATION OF HEALTH by Dr. FELIX O. STRIET** Rs. 4.00
A very educative book depicting how the human organism functions and how its health can be maintained by the simplest, easiest and most inexpensive method. The writer spent 9 years in study and one and a half year in writing the book, which gives complete understanding about health, its maintenance, preservation and its restoration when impaired.
- 6. PROGRAMME FOR DYNAMIC HEALTH by T.C. FRY ..** Rs. 15.00
The author is one of the topmost living hygienist of U.S.A. possessing robust physique and bubbling youth. The book gives a graphic description of the writer, how he had been suffering from in-numerous diseases and how he was restored to vibrant health by mere change of food from cooked to un-cooked. This narrative is most thought provoking and inspiring. The book also depicts with authoritative statistics prepared by the Govt. about the present most horrible and deteriorating health of the citizens of U.S.A. and lays down the most revolutionary, simple and easy methods for bringing about a change for the better. The book very exhaustively explains the principles of Natural Hygiene, nutrition, food combinations, baby foods and hazardous effects of drugs. The book is most informative, educative, instructive, inspiring and highly inducive for right action.
- 7. SUGAR-The curse of civilization by J-J- Rodale, Editor in chief PREVENTION MAGAZINE** Rs. 5.00
This is most authentic and convincing book driving home the salient fact that white sugar is a white poison and its consumption is most dangerous and is responsible for bringing

untold misery to mankind. This book must be read by one and all, the contents properly understood imbibed and translated into action by all those who aspire to possess superb health. If this is done it will go a long way in minimising the suffering of humanity.

8. A DOCTOR'S VICTORY OVER CANCER- My experiments with living food (vegetables, fruits and nuts) By Christine Nolfie M.D.Rs. 7.00

Written by an eminent allopathic physician narrating her personal experience how she was able to combat the deadly disease like breast-cancer and restored to perfect health by mere consumption of vegetables fruits and nuts in their original form as gifted by God without subjecting them to heat or processing. The book illustrates an outstanding demonstration of the salient fact that if the body is supplied its proper requirements principally the natural food in its natural form the vital power inside acts most vibrantly to relieve the human system even from the most dangerous disease like cancer. The book is most educative and inspiring.

9. DOCTOR SAVES HIMSELF BY FRUITARIAN DIET by Dr. O.L.M. Abramowski M.D. ChD, M.O.H Rs. 1.00

The book is written by a highly qualified allopathic physician depicting the wonders of the self-healing powers of the human organism when it is supplied with natural food in the form of fruits. The book is worth reading as it illustrates the personal experience of an allopath and is very much inducive to action.

10. INTRODUCTION TO NATURAL HYGIENE

By Dr. Herbert M. Shelton Rs. 10.00

Dr. Herbert M. Shelton is the greatest hygienist of this century and is an authority on the science of natural hygiene. He is an author of voluminous books on the science of natural Hygiene which will go down in history as one of the masterpieces. In this book the author reveals and explains explicitly the fundamental truth that govern the human existence and establishes un-equivocally the supremacy of the self-healing power of the body over the pernicious habit of medication when the body is supplied with its necessary requirements, un-equivocally the supremacy of the self-healing power of the body over the pernicious habit of medication when the body is supplied with its necessary requirements, un-adulterated and un-polluted. This book is a must for any student or health seeker who wants to dive deep into the science of Natural Hygiene. The language of the book is very forceful and penetrating.

11. DOODH ROGKARAK HAI (H) by Dr. Sohanlal N.D. and Dr. N.K. Sharma N.D.

The book affords a scientific and commonsense explanation of the ill effects on human organism by the consumption of animal milk leading to the onset of in-numerous chronic and degenerative diseases like-heart and respiratory ailments arthritis, indigestion, stones in the kidney or gall bladder and the deadly disease like cancer. The book very successfully explodes the common belief that milk is a perfect food for man. The convincing revelations made are worth knowing.

12. FOOD COMBINATIONS FOR PERFECT DIGESTION by Dr. Herbert M. Shelton..... Rs. 10

For the acquisition of Superb Health free from sickness and disease Food combination plays a very vital role. The author very precisely lays down proper food combination programme which can provide hundred percent nutritional value of the food consumed and do not cause acidity, indigestion upset stomach, constipation, heart burn, digestive disorders etc., and leads individual to superb health. This book is a must for a health seeker and student of natural hygiene.

13. SPROUTS - the treasure of nutrition, by J.D. Vaish Rs. 8.00

Regarding sprouts the book is a store house of knowledge and deals with the subject in minutest details based on the analytical researches made by the modern Scientists in respect of the enhanced nutritious value of seeds and grains when sprouted as well as their remarkable capability of curative and age retarding properties. The author also explains in a very convincing manner how the sprouts are safe, most economical and the best substitute for fruits and vegetables. All those who aspire to possess health cannot afford to miss such a book full of valuable information.

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